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DEVELOPMENT OF THE VICTORY PROGRAM OF 1941

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This is the first of two articles on the Victory Program of 1941 from Chapter XI of Mr. Watson's forthcoming book entitled The Office of the Chief of Staff: Prewar Plans and Preparations, *in the series,* The U. S. Army in World War II. *Copyright 1950 by Orlando Ward; permission for reproduction may be obtained on request from the Chief, Historical Division, Special Staff United States Army, Department of the Army, The Pentagon, Washington 25, D. C.—The Editor.*

PART I

RECOGNITION by the Army Chief of Staff, General George C. Marshall, of the uncertainties with which Lend-Lease, once passed, would becloud any prior program for matériel was justified by developments following closely on the bill's passage on 11 March 1941.

On 10 April, Secretary of War Henry L. Stimson outlined the procedure to be followed under the Lend-Lease Act, setting up a coordinating Defense Aid Division in the Under Secretary's office and Defense Aid Committees to determine matériel needs in accordance with instructions from the Chief of Staff. However, it was already apparent that neither the Defense Aid Division nor the other agencies of Lend-Lease could make their plans for supplies without a fuller knowledge of long-range strategic plans. Even before the Secretary published his instructions, G-4 made its doubts known in a memorandum prepared by Colonel Henry S. Aurand for signature by his chief of division (General Eugene Reybold) and addressed to the Deputy Chief of Staff.

> It is understood that there will be published shortly by the Secretary of War the lend-lease procedure within the War Department. It is hoped that this procedure will permit the formalizing of requests for aid. However, there is an absence of any administrative office for the clearance of these requests prior to their being forwarded to the War Department. Until some such agency is set up, the War Department must be prepared to act on sporadic oral requests. The procedure about to be published does not lend itself to such action.

Colonel Aurand's memorandum had proposed that the Army, the Navy, the Maritime Commission, and the British agencies in Washington consider jointly the problems of total production and coordinated demand. On 18 April, its various suggestions were excerpted and circulated to supply branch chiefs.

Procurement Objective

On this same day, 18 April, much the same concern over the need for a clearly

To obtain the production estimates for the Victory Program, the Army's Staff had to determine available manpower, make a strategic estimate, calculate the required units, and then compute weapons and equipment

stated objective was being expressed in strong terms by Under Secretary of War Robert P. Patterson. His office, which had the responsibility for procurement of equipment for the Army, likewise had recognized that if American industry was to turn out the munitions required by Lend-Lease as well as those contemplated for a steadily growing American Army, it would be necessary to chart the future requirements and make plans suited to reality. The situation was suggestive of that of June 1940 when this same office, under the prodding of Colonel (later Major General) James H. Burns, its executive officer, had pressed the Chief of Staff for a clear statement of future requirements and had finally extracted approval of an estimate which in reality was beyond the visible powers of industry, and which accordingly had to be whittled down.

Now on 18 April 1941, Under Secretary Patterson addressed to the Secretary of War a memorandum designed both to make fuller use of industry and to force a clear decision upon the nation's real war policy, and hence upon the long-range needs of the American military establishment. With a good deal of bluntness, it referred to "probable" (not "possible") enemies and theaters of operation.

It said:

1. At the present time, funds have been appropriated, and in large part obligated, for a production objective which is substantially as follows in so far as the Army is involved:

a. Air Forces: Productive capacity of approximately 3,400 complete airplanes per month of which 1,800 pertain to the United States Army, 400 to the United States Navy, and 1,200 to Great Britain. The capacity for combat planes approximates 2,500 per month of assorted types.

b. Ground Forces: Productive capacity to support approximately 4,000,000 men on combat status.

2. While the above program will tax American industry to the limit for a number of months, it does not represent the maximum munitions effort of this country. It is believed a decision should be made as promptly as possible on the production effort necessary to achieve victory on the basis of appropriate assumptions as to probable enemies and friends and theaters of operation. It is presumed that the munitions power available to this country and its friends must exceed to an adequate extent that available to its enemies.

3. It is suggested that a joint committee be created to make appropriate recommendations, and to consist of representatives of the Army, Navy, Maritime Commission, and of Office of Production Management.

4. In any event, this office needs a decision as to the ultimate munitions production required by the War Department so that appropriate plans can be started.

The importance of this communication in once more arousing the White House to munitions needs for an ultimate victory over Hitler, and to the desirability of computing these needs on a long-range basis (and hence in starting what became known as the Victory Program) is not susceptible to measurement. There were other factors, notably General Staff activities. Yet not only the reasoning but fragments of the very language in paragraph 2, above, will be found in a 9 July letter of President Roosevelt which led directly to the Victory Program. There is no ready explanation of why a recommendation whose very language could persist for nearly 12 weeks, as in this case, should have taken so long to produce the President's directive, and this in itself suggests the partial responsibility of the other factors. One must also have in mind the distractions of contemporary events and anxieties, a few of which may be mentioned. The Selective Service extension plan with its embarrassing political complications was already being cautiously considered. The occupation of the Azores now was so genuinely contemplated that an occupation date (22 June) was once designated, only to be cancelled a little later. The German-Russian drift into war was gathering headway, and there were conflicting views of the effect which that stupendous clash would bring about.

Joint Conference

Eleven days after the recommendation was laid before Mr. Stimson, a copy of Under Secretary Patterson's memorandum was forwarded by his executive officer, General Burns, to the Chief of Staff, with mention that Secretary Stimson in ap-

proving it had suggested the creation of a joint conference representative of Army, Navy, Maritime Commission, and the Office of Production Management (OPM). Without pressing the point that nothing apparently had yet been done to comply with the Secretary's wish of 11 days earlier, General Burns tactfully suggested now that the Joint Army and Navy Board be asked to make recommendations. The entire matter as presented in the Patterson memorandum and in those from G-4 now was considered by War Plans Division (WPD), whose acting chief, Brigadier General Harry J. Malony, on 12 May presented the Division's summary of information to date upon the new Defense Aid organization, reporting it to be "seriously deficient" as a means of coordinating production and strategy. The summary proposed referring to the Joint Planning Committee all requests then before the Defense Aid Division, preparatory to a study by the Joint Board. Presumably, this was before General Marshall on 14 May when he sent to the Joint Board the G-4 suggestions of 7 April, along with the Patterson memorandum and the documents setting up the Defense Aid Division. Three days later, the Board referred the proposal to its Joint Planning Committee.

On this same day, nearly a month after writing his provocative memorandum, the Under Secretary once more moved for action, this time orally. He was attending a conference in General Marshall's office on 17 May when the Chief of Staff raised a question of whether the Army was justified in "going beyond the 2,800,000 for critical items; we have already gone beyond that figure for facilities, but we will not need a 4,000,000-man army unless England collapses, and . . . the shipping problem . . . is a definite factor in the size of the Army."

The Under Secretary said that he had invited John D. Biggers of OPM to explain the situation, and the conference members thereupon moved over to the Under Secretary's office to hear the explanation. Mr. Biggers observed that OPM was "getting very definite pressure from the White House to get intensified effort from industry." He added that the President felt industry should employ multiple shifts in order to increase production, but that industry was reluctant to set up a larger mechanism for army orders without assurance that the orders would be enough to justify it. Mr. Biggers asked, apparently of the Chief of Ordnance who was present: "Is it true that if your supply or procurement service knew your whole objective you could place that load easier than if it was placed in successive bites?" The direct answer to this was self-evident, but the Chief of Staff volunteered:

> If procurement of these essential items, which amount to several billion dollars, would help you, we might possibly get them and store them against future use. However, another complicating factor is the priorities question. What will the bomber program do? (This was the 500 heavy-bomber program which the President was already asking OPM to make a first priority.) The President has said to step up the cruiser program.

Within WPD, there was an increasing conviction that effective coordination of purchases should be initiated with a minimum of delay and, presumably, a doubt that efforts within the Joint Planning Committee would be immediately effective, for without awaiting JPC action, Lieutenant Colonel C. W. Bundy of WPD invited his chief's attention to "a most important matter" calling for decision "at the earliest possible moment." He observed that, beyond the large and conflicting needs within the United States armed services, British and Chinese were pressing for munitions shipments and "Prominent lay strategists are recommending all sorts of aid based on their particular interests." He referred to the Under Secretary's 18 April quest of an ultimate program, and proceeded: "The situation is extremely confused. Confusion will reign

until an agency for formulating a policy based on all strategic plans is designated." The need for detailed examination of requirements beyond those of the Army was so manifest that Colonel Bundy's chief, General Leonard T. Gerow, ultimately sent his assistant's memorandum to the director of the Navy's WPD.

Nothing resulted immediately either from the Navy's examination of this memorandum or from a 7 June memorandum (prepared by Colonel Bundy and dispatched by General Gerow to the Chief of Staff) reminding the Joint Board once more of the need for an over-all estimate of munitions production ultimately required for the nation's security. General Marshall in the interval decided to act. Apparently convinced that the matériel situation had to be faced, he addressed to WPD the following instructions:

> We are continually receiving suggestions as to increases and changes in armament, bombers, etc., along with suggestions of a more far-reaching nature. To provide a base of departure for meeting these proposals we should have a more clearcut strategic estimate of our situation from a ground, air, and naval viewpoint. With such an estimate kept up to date, the various organizational, tactical, and strategical questions which are constantly arising could be answered with more consistency than at present. . . .
>
> Please contact other divisions of the WDGS and take the necessary steps to have an estimate prepared to be submitted to me in the rough. It should be brief. Appendices can be added at a later date to support the various statements. The initial paper could be utilized as a basis for obtaining the views of other departments. Then we could revamp the estimates.
>
> G. C. M.

Here was recognition of the Staff's own responsibility for action, in line with G-4's recommendations of previous weeks. A new G-4 memorandum asserted that the War Department should state its firm requirements for an additional $6,000,000,000, and that all orders for those requirements should be placed without delay as an aid to industry in its planning. Meantime, other pressures were apparently being applied, for the Deputy Chief of Staff at one of his own conferences remarked that

> The General Staff is receiving pressure from newspapers and otherwise to go above the present supply objectives and to procure a war reserve. . . . The only way we can do this is to make a strategic estimate of the situation, based on the capabilities of Germany, Japan, Italy, and Great Britain in this respect. . . . WPD is working on this and I want every General Staff division concerned to help them as much as possible.

Still later, again in apparent response to outside pressures, the Chief of Staff summoned representatives of WPD, G-3, and G-4 in conference and said, in summary:

> The OPM desires that we look into the matter of increasing and continuing our orders for matériel in order that industry may be utilized to its fullest extent. . . . We must not create the situation that a year from now possible shortages will exist and we will find it necessary to say that we were sorry that we did not anticipate the true situation.

On the other hand, he still was concerned over ordering too much and too hastily, and warned his assistants against extravagance.

> Make a list of items of equipment which you think we should have accumulated into a pool. . . . I want to find out how much industry needs in order to carry them for, say 6 months. . . . We must be careful that a shortage is not created by too great a demand which blocks current effort. . . . We must not get a pile of stuff which is not only obsolescent but blocks other things more essential.

This sequence of discussions and the delay in meeting in any swift and thorough manner either Under Secretary Patterson's blunt suggestion of 6 weeks earlier or the several G-4 recommendations suggest that, despite the strong words, in the Army's high command there still was insufficient appreciation of the matériel side of war, of the inescapable time lag in industrial production, and hence of the necessity of placing firm orders long before the goods would be needed. This had been the warning of the retiring Chief of Staff, General Malin Craig, 2 years previously. It had been the occasion of pressure by Colonel Burns in 1940. That General Marshall had drawn his own conclusions from the delays already apparent in industry is suggested by his doubts, expressed at the 17 May conference, whether a 2,800,000-man Army was not about the limit for

immediate planning. Yet the sequence of events suggests that it was the pressures from the Under Secretary's office and from OPM and, most effectively, from the White House, which succeeded in extracting from the General Staff that complete statement of Army needs—not for 1941 and 1942 but for the actual winning of a war not yet declared—for which Mr. William S. Knudsen and his fellow-industrialists had been asking for months.

Planning Initiated

The Chief of Staff's May 1941 instructions to his principal assistants in this realm of planning finally set the mechanism to work, with WPD assigning to Major (later Lieutenant General) A. C. Wedemeyer the chief responsibility for a task whose immense reach and complexity and importance were not surmised by the Staff itself until the ultimate product, "The Victory Program" of 10 September 1941, was completed.

That task occupied the whole attention of those to whom it was entrusted and a large part of the attention of other sections of the General Staff. Colonel Aurand, for example, who in behalf of G-4 was supplying basic data for the WPD study, afforded continuous guidance upon the competing demands for production which for months had been troubling G-4 and the civilian procurement agencies. It was Colonel Aurand who, in line with his 7 April suggestions which at last were being carried out, drafted the letters which on 30 June the Secretary addressed to Mr. Knudsen, to the Secretary of the Navy, to the Chief of the Maritime Commission, and to Arthur B. Purvis, chairman of the British Supply Council, suggesting the need for an over-all balance sheet of Allied productive effort.

The Secretary's letter to Mr. Purvis (anticipating the President's wishes in this respect) was a step toward the consolidated statement of British—American—Canadian production which came to pass 4 months later. This, to be sure, was not a part of the Victory Program nor of the Strategic Estimate of the following October, but the interrelation of the three enterprises is apparent.

A tentative reply to the 30 June letter came on 14 July, promising data by the end of the week, but there was no full answer until 2 months later, following discussion of the matter at the Atlantic Conference. A ray of light on possible reasons for the delay was cast weeks later by the US Special Military and Naval Observers in London in a letter to their chiefs. This reported that the British were reluctant to give exact figures "either because they fear such an estimate may be used to block any further increase, or because the totals may be considered by United States authorities as impossible of attainment." The figures which they supplied even then were in fact incomplete, to be replaced by substantial estimates only after a War Cabinet meeting in London on 20 September 1941, held to welcome the Harriman Mission en route to Moscow.

Presidential Directive

By 9 July, however, the President appears to have become concerned over the conflicting programs, and decided that a directive from him would be desirable, for on that date he addressed to the Secretaries of War and Navy the following letter:

> I wish that you or appropriate representatives designated by you would join with the Secretary of the Navy (or War) and his representatives in exploring at once the over-all production requirements required to defeat our potential enemies.
>
> I realize that this report involves the making of appropriate assumptions as to our probable friends and enemies and to the conceivable theaters of operation which will be required.
>
> I wish you would explore the munitions and mechanical equipment of all types which in your opinion would be required to exceed by an appropriate amount that available to our potential enemies. From your report, we should be able to establish a munitions objective indicating the industrial capacity which this nation will require.

I am not suggesting a detailed report but one that, while general in scope, would cover the most critical items in our defense and which could then be related by the OPM into practical realities of production facilities. It seems to me we need to know our program in its entirety, even though at a later date it may be amended.

I believe that the confidential report which I am asking you to make to me would be of great assistance, not only in the efficient utilization of our productive facilities but would afford an adequate opportunity for planning for the greatly increased speed of delivery which our defense program requires.

I am asking Mr. Hopkins to join with you in these conferences. I would appreciate it if the Secretary of War could take the initiative in these conferences.

Very sincerely yours
Franklin D. Roosevelt.

One cannot examine the text of the second and third paragraphs of this letter without noting resemblances to Under Secretary Patterson's memorandum of the previous April. The exact relationship is not discernible in available official records. but one may note that a frequent visitor at the White House offices at the time because of his important role in Lend-Lease matters was General Burns who as executive for the Under Secretary had much to do with the original April memorandum. That industrious and matériel-minded officer, long conscious that the Army was still laggard in pressing industry to its limit, was thus in an excellent position to bring the production issue before Harry Hopkins, his superior in Lend-Lease, and thus to have more effective pressure applied to the War and Navy Departments by Mr. Roosevelt himself. While the May and June conferences had increased the arms orders somewhat, it was apparent that so pointed a communication from the President as that of 9 July would provide pressure which nobody would resist, and which would bring to pass a carefully constructed over-all estimate more thorough than anything which the Chief of Staff or the Chief of Naval Operations had yet promised.

If this was General Burns' surmise, it was correct, for the letter had a galvanic effect upon both War and Navy Departments. Secretary Knox on the following day asked Admiral Harold R. Stark, as Chief of Naval Operations, to have the desired study made by the Navy's War Plans Division and a report made to him. He mentioned that Mr. Stimson was reported to be doing likewise. Admiral Stark promptly referred the Secretary's letter to the Joint Board, recommending reference to the Joint Planning Committee for later report to the Board. He also recommended that the Chief of Staff join him in appointing a group of experts to assist the Committee.

So strong was the influence of that White House demand (for more specific information upon total requirements than was originally in mind) that years later General Wedemeyer, who was chief architect of the resultant Victory Program, felt that Mr. Roosevelt's letter had provided him with the principal, though not the initial, authority for assembling detailed information from all sources.

Major Wedemeyer had already started his labors, to be sure. A major in WPD at the time when General Marshall gave his 21 May instructions, he was promptly assigned to the designated task. By 24 May, after consultation with him on his working requirements, Brigadier General Malony, then Acting Chief WPD, addressed memoranda to G-2 asking for data upon the situations and capabilities of each of the major combatant nations, and to G-4 asking for information on shipping and munitions. Two days later, G-2 was asking for similar data on Russia and on the Latin American nations. The next day, representatives of all the Staff divisions and of GHQ and the GHQ Air Force met in General Marshall's office for an oral discussion. This was followed on 3 June by circulation of a memorandum to all Chiefs of Staff Divisions and of Arms and Services, a notation mentioning that it was delivered by Major Wedemeyer in per-

son, presumably for oral explanation of an accompanying outline of data he would require for his strategic estimate.

Strategic Estimate

Certain aspects of the estimate were stated in advance of the computation or even of the study. Notably, the estimate was to assume "July 1, 1943 as the earliest date when US armed forces can be mobilized, trained, and equipped for extensive operations" and, further, it was to assume that the nation would be "participating in the war under *Rainbow Plan 5*." The memorandum stated that WPD would integrate all the information the other Divisions would provide on the combatant nations' capabilities and intentions and limitations and upon America's troop basis, shipping, munitions requirements, and munitions production.

A memorandum from General Malony to the Chief of Staff reported that the study was under way "to determine the capabilities and probable lines of action of Axis powers and of friendly powers. When completed, this study will present the War Department views on current and projected policies and actions, and will provide a troop basis and a production basis." The draft was in fact completed in early July "as of July 1, 1941" but was regarded by General Gerow on 16 July as needing further development. Possibly his judgment was influenced by knowledge of the President's 9 July letter asking for far more than this rather hastily gathered estimate. The WPD Chief could also have been made uneasy by the circumstances that, although the need for joint planning with the Navy was manifest, and the President's new letter specifically sought it, the "as-of-July 1" draft was a purely War Department enterprise. A third reason for hesitancy was expressed in the memorandum to General Marshall:

> **The estimate is based upon a more or less nebulous national policy, in that the extent to which our Government intends to commit itself with reference to the defeat of the Axis powers has not as yet been clearly defined. An effort has been made to reconcile the spirit of the various official pronouncements and laws with their literal and legal interpretations.**
>
> **The time element is vital in strategic planning. To insure timely and effective exploitation of our war potential, a careful coordination is necessary to provide and maintain munitions for a rapidly expanding military force. The lag between plan and execution is considerable, and makes necessary a clearly defined national policy for guidance in future planning.**

General Marshall requested that the estimate be submitted to General Stanley D. Embick and the Navy for comment. This was done, and General Embick's oral comment presumably given, but when 29 August went by without recorded comment from the Navy the Chief of Staff gave his approval to the WPD estimate.

Production Estimate

By that time, the WPD exploration of the supplies situation had been engulfed in the much larger enterprise—the quest of a real "victory program" made necessary by the President's letter of 9 July. In that letter, Mr. Roosevelt sought an estimate of the ultimate production requirements for victory over the Axis and its allies. The WPD's July strategic estimate was only the first step toward the desired production estimate, but a necessary one. Because the basis for that first step had been explored for weeks by Major Wedemeyer, General Gerow gave to this same officer the major responsibility for the new and larger task. The gathering of new information began with a request to G-2 for an estimate of the production capacity, present and ultimate, of Germany and the occupied territories and the German allies as related to airplanes, to armored divisions, and to infantry divisions. Four days later the reply came in detail.

About 2 weeks later Assistant Secretary of War John J. McCloy drafted for Mr. Stimson's signature a letter which would report to the President the progress made to date in complying with Mr. Roosevelt's

wishes. It noted that on 30 June, some days in advance of the President's directive, the Secretary had initiated inquiries on this matter, through letters to OPM and to the British, as part of the War Department's continuous study of the munitions prospect. It indicated that the information desired by the President would be available shortly. A memorandum from General Gerow to Mr. McCloy, with suggested alterations for the draft, is of special interest as showing not only that WPD was at work upon the estimate but that the professional Staff was disturbed by the possibility of civilians thinking that the war might be won solely on the production line. General Gerow said:

> We must first evolve a strategic concept of how to defeat our potential enemies and then determine the major military units (Air, Navy, and Ground) required to carry out the strategic operations. . . .
> It would be unwise to assume that we can defeat Germany by simply outproducing her. One hundred thousand airplanes would be of little value to us if these airplanes could not be used because of lack of trained personnel, lack of operating airdromes in the theater, and lack of shipping to maintain the air squadrons in the theater . . . Wars are won on sound strategy implemented by well-trained forces which are adequately and effectively equipped.

The Calculation of Manpower

The President's instructions had been that the Army (and Navy) provide information on "the over-all production requirements required to defeat our potential enemies," and the assumption might have been that from this computation the Army would proceed to a calculation of the manpower which would be needed to make use of the arms thus produced. Assistant Secretary McCloy was puzzled by the fact that WPD's calculations followed the reverse course. In his memorandum to General Gerow, accompanying the draft of the letter to Mr. Roosevelt, he had remarked that he would be

> very much interested in seeing how your method of "first figuring the number of soldiers that it will require to defeat the Axis powers and from such figures determining the number of weapons that are necessary" jibes with the method outlined in the enclosed.

It was unarguable that, regardless of estimates of the height to which production of equipment might soar, there would be need for accompanying estimates of the number of divisions and other units which would make up the Army and use the equipment. This would call in turn for a computation of the number of men making up those units, and it was obvious that the nation's population would itself determine the absolute limit of that number. To provide himself, therefore, with a controlling guide for the end process of computation—the maximum number of men—Major Wedemeyer explored at the outset through a variety of government departments the available estimates of the nation's total able-bodied manpower. He deducted from it the number presumably required by industry (as estimated by departmental statisticians) and by the Navy (whose first estimate of 1,300,000 proved far from the mark) and by other agencies, and thereby reached a total remainder which, without combing out the exempted and deferred classes, would surely be available to the Army, if needed.

This total remainder consequently became in his calculations an approximate maximum, and almost as completely a nonvariable in figuring as was the promised date of 1 July 1943. With this as a prospective known result, he and his colleagues then could proceed more knowingly toward a strategic plan which could surely be implemented by American manpower; thence toward a calculation of units; thence toward a computation of needed weapons and equipment; thence, at last, to the statement of ultimate production requirements which constituted the Victory Program.

This helps explain the otherwise startling fact that the total of the conjectured Army, stated in the Victory Program of 1941 before the United States was openly at war, was so close to the actual total

achieved 4 years later. The Victory Program's total in manpower was 8,795,658 and the actual peak strength (air and ground) as reported on 31 May 1945 was 8,291,336. The Victory Program Army's conjectured composition item by item, however, was far from the actual composition of the 1945 Army—a conspicuous variation being from the conjectured total of 215 divisions, including 61 armored, which compared with the ultimate 91 divisions, of which 16 were armored. The excessive estimate was useful, however, in setting production sights for equipment, which ultimately went to Allied divisions, in addition to US divisions actually organized. The Program also proposed such specialties as 51 "motorized" divisions which did not continue as a separate type, being regarded on reconsideration as too vulnerable to enemy attack while on the march, uneconomical as keeping trucks idle much of the time, and expecting too much shipping space which then was priceless. The mobility which the motorized divisions were designed to provide was afforded by motor transport units from a common pool.

The 10 airborne and 10 mountain divisions contemplated in 1941 shrank to 5 and 1 respectively in the actual Army. This was determined in the one case by practical considerations of training and in the other by a known as distinguished from an unknown terrain. The ratio of service forces to combat elements, on the other hand, had to be materially increased. This again was due to actual theater requirements including long and numerous lines of communication, of which prewar study of possible requirements could provide no sure foreknowledge.

The number of men proposed in the Victory Program for antiaircraft artillery units was 464,695, which was far in excess of the actual May 1945 total of 246,943. However, as late as November 1942, over 600,000 men were so assigned in the 1943 Troop Basis. The number fell away because Allied air superiority had been achieved and therefore fewer ground defenses against enemy air attack were called for.

The contemplated composition of the future armored corps, of two armored divisions and one of motorized infantry, was shortly discarded despite its impressive origin. It was an organization recommended at the German War College some years earlier (when Major Wedemeyer had been in attendance as a US Army exchange student) in expectation of encounter with weaker foes, and it was later adjudged unsuited for combat with a sturdy opponent. A further factor causing Germany to abandon it was that it called for more equipment than German industry would provide at that stage save at the cost of other production deemed even more essential.

Unknown Future—Doubtful Present

The 1941 calculations, in sum, dealt with an unknown future as well as a doubtful present. They not only recognized that without air control large antiaircraft defenses would be needed, but they contemplated the possibility of Russian defeat which, had it come to pass, would beyond doubt have necessitated the use of greater armored and infantry strength than the American Army was actually called upon to produce. The items ultimately developed, accordingly, varied a great deal from the original computation, as was inevitable from the ensuing alterations of the world situation and of resulting strategy and tactics. The total of manpower varied little, on the other hand, simply because the Victory Program was boldly calculated on the assumption that all able-bodied men not required for Navy or industry would be taken by the Army, and this was not very far from the fact, if one keeps in mind the exacting standard set for the category of "able-

bodied." In making long-range plans in that grand perspective, the Staff did in fact meet the hope expressed in the Patterson memorandum of 18 April for "a decision . . . on the production effort necessary to achieve victory" and a resultant program which might well "represent the maximum munitions effort" of the United States. This goal, never before squarely faced by the Staff, the Victory Program definitely sought.

There was need for continuing revisions of the estimate because of such additional unknowns as the future of the war at sea. In the summer of 1941, that future was dark, so that the calculations of America's possible overseas strength for a proposed mid-1943 D-day had to include the large, yet undeterminable, element of shipping. This critical requirement was the subject of a G-4 memorandum of advice:

> Production requirements should be determined by the over-all forces of all friendly powers necessary for the defeat of our potential enemies, and from these over-all requirements must be subtracted the production possibilities of our friends. A balance sheet of production by friendly powers is now under preparation by a secret committee of the War Department.
>
> A time at which our effort to defeat our enemies can be made must be determined on the availability of shipping to carry our monthly production of munitions, rather than on our ability to ship troops.
>
> The availability of shipping will be the deciding factor in determining how large a force can be shipped and maintained overseas. In this connection, the following considerations would seem to govern:
>
> By July 1, 1943, the date assumed by WPD to be critical in equipping a force of 10,000,000 men, our proposed shipbuilding program will provide a total of about 6,000,000 gross tons of shipping that may be assigned to an overseas effort. Such an amount of shipping would transport and maintain a force overseas of about 3,000,000 men. . . .
>
> Assuming the present planned rate of increased ship construction . . . it would probably be another 3 years, or 1946, before a force of 10,000,000 men could be maintained overseas, unless the shipbuilding program were further accelerated and ship sinkings greatly reduced.

Computing Equipment

By 23 August, thanks to inquiries and rechecks among numerous sources of information, WPD had completed not only an amplification of the original strategic concept of the previous month but, with special aid from G-3, a 14-page estimate of the Army forces (within the 8,795,658 maximum already accepted) which would be required to attain victory. Concurrences had been received from other Staff Divisions. On this date, WPD asked that G-4 employ the G-3 estimate of combat units to determine the number of equipment items which such a force would require. G-4, and more particularly Colonel Aurand, made the detailed computations sought and provided them in 2 weeks. It was rapid delivery, but not rapid enough to keep up with the President's impatient desires.

The Staff's thoroughness in preparing the report and its desire to arrive at a sound estimate—disturbed almost daily by reports of new German successes in Russia and of Japanese maneuvers in the Far East—had prevented a swifter assembly of information. There were no complaints from the White House in early August, because the President was on the ocean until 16 August, absorbed in the Atlantic Charter conference.

But on 29 August, WPD (Colonel Bundy) received a peremptory request via General Burns whose telephone call, as reported to the Chief of Staff by General Gerow, announced that "the President was getting very impatient concerning the delay in submission of the report on ultimate requirements." General Burns added that "the President would expect the report to be submitted to him complete by September 6, 1941. General Burns further requested Colonel Bundy to notify the Navy Department to this effect."

In the meantime, however, the President's advisor, Mr. Harry L. Hopkins, who had lately returned from Moscow and then made the August sea voyage with the President and now was week-ending at Hyde Park, apparently discussed events in Russia with Mr. Roosevelt, developing a greater degree of confidence than the Army itself felt in Russia's ability to with-

stand Hitler's massive drive to the east, and a belief that more aid to Russia would prove a good investment. The President was already working on his coming broadcast, in which he was to pledge "everything in our power to crush Hitler and his Nazi forces."

New Presidential Memorandum

Mr. Roosevelt's own sights may have been raised by recent developments, for he now wished considerably more information than he had previously asked of the War and Navy Departments. There therefore came to the Secretary of War, close on the heels of General Burns' telephoned message, a memorandum from the President himself, so completely superseding his 9 July request that it mentioned neither the earlier communication which had sped Major Wedemeyer and his colleagues into action nor the recent Burns-conveyed instructions for a response to it by 6 September. It called, rather, for a more extended report, for a more enveloping purpose, to be delivered on 10 September. His memorandum of 30 August read:

As you know, I recently send Mr. Hopkins to Moscow to inquire into Russian needs for munitions that might be obtained from American production and to inform the USSR that this government is willing to help with such supplies to the extent of its ability.

As a result of that visit and Mr. Hopkins' report to Mr. Churchill and myself, a suggestion was sent to the USSR that a conference be held in Russia in the near future to be attended by representatives of Russia, Great Britain, and this country to have as its objective the formulation of definite munitions aid programs to assist Russia in its war efforts which might be supplied by Great Britain and the United States.

Russia accepted that suggestion and the representatives of the various countries are to meet in Russia by October 1, 1941.

I deem it to be of paramount importance for the safety and security of America that all reasonable munitions help be provided for Russia, not only immediately but as long as she continues to fight the Axis Powers effectively. I am convinced that substantial and comprehensive commitments of such character must be made to Russia by Great Britain and the United States at the proposed conference.

It is obvious that early help must be given primarily from production already provided for. I desire that your Department, working in cooperation with the Navy Department, submit to me by September 10, 1941, your recommendation of distribution of expected United States production of munitions of war as between the United States, Great Britain, Russia, and the other countries to be aided—by important items; quantity time schedules, and approximate values for the period from the present time until June 30, 1942. I also desire your general conclusions as to the over-all production effort of important items needed for victory on the general assumption that the reservoir of munitions power available to the United States and her friends is sufficiently superior to that available to the Axis Powers to insure defeat of the latter.

The distribution of production from existing production after June 30, 1942, and the distribution of the victory production objective will obviously have to be decided at a later date in the light of then existing circumstances.

After the above reports and recommendations are submitted, I propose to arrange with the Prime Minister of England for a conference of high military officials for the purpose of discussing the above two recommendations as well as the aid to be provided by England to Russia. In view of the date on which the conference is to be held in Russia, it is important that the recommendations resulting from this British conference reach me not later than September 20th, next.

With the knowledge of these recommendations, and after further consultation with the Prime Minister of Great Britain, I will be able to instruct the mission going to Russia as to the aid which will be supplied by this country. Should adjustments to this program of assistance be necessary, they will be recommended to me by the mission to Russia after due consultation with the Russians and the British on the spot.

Franklin D. Roosevelt.

In linking our security interests to those of the Atlantic community, we have lessened the likelihood of resort to armed defense against aggression. For where an aggressor is forewarned that his lawlessness must reckon with the judgment of the American people, he will not lightly challenge the combined resources of our free world.

Secretary of Defense Louis Johnson

Why a Trained Logistical Division?

Colonel Joseph P. Cleland, *Infantry*
Instructor, Command and General Staff College

NOWHERE in the already voluminous accounts of World War II is there a more cogent example of the need for adequate logistical support in military operations than in the battle for Guadalcanal.

As was demonstrated at Guadalcanal, the solution of logistical problems in a campaign is just as vital as the tactical defeat of the enemy. In fact, the point might well be made that unless logistical problems are adequately solved, the defeat of an enemy becomes highly problematical, if not impossible.

After 1918, Generals Hagood and Harbord submitted both official and public accounts of their uphill struggle to establish an efficient logistical service in World War I. So utterly unheeded were their lessons, however, that 1941 saw mighty efforts being wasted in "doing it the hard way." In the early days of World War II, similar, if not identical, errors of World War I were being repeated.

Even now, we seem not to have learned. Comparatively little attention is paid to logistical organizations in the Army in peacetime. There are three reasons for this. First, it is assumed that large and small logistical units can be quickly assembled in time of war to do a job. Second, organization and training of logistical units, paralleling our combat units, is not considered necessary for logistical units in peacetime. Third, there is the prevalent belief that tactics is all-important.

What we learned about logistics in the Service of Supply (SOS) in World War I was left comparatively unexploited until our troops in World War II were again actually fighting thousands of miles from our homeland with inadequate logistical support.

The crying need for large and small logistical units in the Pacific Theater in World War II points an accusing finger at our failure during peacetime. Our failure was in neglecting to organize and train units such as standard logistical divisions, regiments, or battalions to parallel the fighting divisions in organization, discipline, training, efficient functioning, and *esprit de corps*. We failed to form units that were capable at least of relieving our combat troops from the heavy burden of logistical support.

Fitting in the Logistical Division

Let us examine the logistical setup as it existed in the South Pacific Area. After the smoke of Pearl Harbor cleared away, the United States sent task forces into the South and Southwest Pacific. Bases were established, in general, on Australia, New Zealand, New Caledonia, the New Hebrides, Fiji, and Tongatabu. We made assault landings on Guadalcanal and Tulagi in the Solomon Islands.

These invading forces brought with them sufficient supplies to last for a definite period. At the end of this definite period, a system of automatic, direct sup-

ply from the ports of embarkation on the West Coast of the United States was put into effect. In other words, based on strength, mission, future development, and many other factors, a set amount of supplies was furnished these task forces periodically (see Map 1). Later, this automatic supply without requisition was replaced by a system in which each task force requisitioned for its needs directly on the port of embarkation.

As soon as the tactical situation allowed, Service of Supply Base Headquarters were established in the South Pacific and Southwest Pacific Areas under their respective area commanders.

In the South Pacific Area, the Base Headquarters was located at Noumea, on the French island of New Caledonia. This SOS Headquarters immediately organized Provisional Service Commands (PSC) at all bases except Guadalcanal. These PSC assumed control of all supplies, not actually in the hands of troops, at these bases. Through this control, supplies at all bases in the SPA were inventoried and a redistribution of supplies was initiated. Where necessary, supplies were shifted or exhausted. At some bases, levels were increased as dictated by the situation. These provisional supply bases were later activated as Service Commands. Being directly under the SPA SOS Base Headquarters, they processed all requisitions and reports through that Headquarters (see Map 2). Thus, an over-all area logistical organization was created.

On paper, it was a beautiful job. The weakness lay in that it depended entirely on combat troops, with few or no SOS troops yet available to participate. Commanders and staffs of the newly created Service Commands were neither adequately trained nor experienced in logistical matters. There were two operational solutions to this unplanned-for problem. Combat troops, without adequate equipment or supply training and directed by logistically untrained commanders and staffs, could be used. Or, ships could be allowed to pile up and remain idle in harbors until trained logistical units and staffs, and particularly handling equipment, could be made available.

The island commanders and the troop commanders struggled admirably with this problem. But in the absence of trained logistical units, handling equipment, lighters, cranes, and piers, and with the defense of an island as the primary responsibility, the problem proved to be too great. In many places, combat troops moved on but the base remained to become a large supply base for future operations. Only the minimum number of supply troops and a skeleton headquarters were left to operate the base, and these were usually extracted from departing combat units. Noumea, New Caledonia, the Headquarters of the South Pacific Area Service of Supply, and Guadalcanal were probably the two outstanding examples of these weaknesses in the logistical organization.

Guadalcanal illustrated the danger of inadequate logistical support in military operations. The logistical division type of unit offers a ready solution, but it must be organized and trained in peacetime

Contrary to popular opinion, it is a fact that there were ships and supplies in abundance in the Pacific Theater in the early days of the War. Failure to distribute and unload the supplies gave the erroneous and costly impression that there were insufficient supplies and ship's bottoms on hand. The shortage was in trained logistical units to handle these supplies.

In order to determine whether there would have been shipping space for logis-

tical units, if they had been available for early shipment, let us consider the following. During the period from September 1942 to March 1943 (the Marines landed on Guadalcanal on 7 August 1942) the staggering figure of 91 badly needed cargo ships were tied up in the harbor of Noumea, New Caledonia, alone. Many of these ships lay at anchor for more than 3 months. They were not unloaded because there were neither men nor equipment to unload them. The infantry division task force which landed on New Caledonia, in March 1942, and which was charged with the defense of this large island, was unable to cope with this supply congestion. Later, this division moved on to Guadalcanal to take part in the fighting.

During the above-mentioned period, a reinforced corps of three divisions (including reinforcing units ranging from detachments to regiments of Army, Navy, Air Force, and Allies) was built up during the fighting on Guadalcanal. The same distribution and unloading situation prevailed at Guadalcanal. There were insufficient logistical units and handling equipment—and improper organization of the pitiful few that were available—to handle the vital logistical problem. The logistical phase was not planned.

Actually, the situation became extremely critical, not only at Noumea and Guadalcanal but also at other bases in the Area. The fact was that the critically needed logistical units and equipment were not available in the United States. Certainly, ship space was not lacking.

Had logistical units been blue-printed, activated, and trained during peacetime, and had they been staged into the Area as needed, the story would have been different. However, between the two World Wars we had frowned on training logistical units.

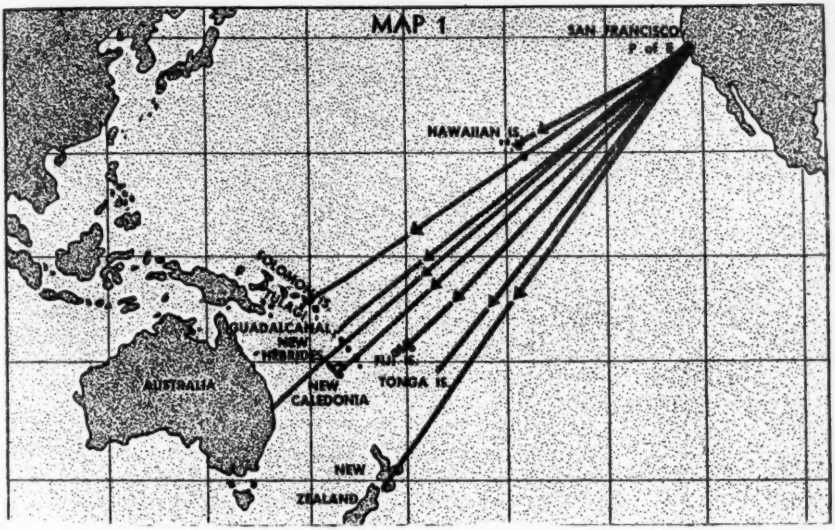
Take this same picture and assume that two logistical divisions had been ready to move with the task forces, organized so that they could have been broken down into small support units, such as logistical regiments or battalions. One logistical division could have been given an area support mission to support several of these widely separated task forces. The second logistical division could have been staged at Noumea, New Caledonia, where the Headquarters and Main Supply Base of the South Pacific Area was established. It can be seen readily that an orderly, simplified arrangement of the over-all logistical support would have resulted. Achievement would have replaced bungling, partial success. Therefore, unless we now give the necessary emphasis to logistics by developing, organizing, and training units of the Logistical Division type, we will again be in the same status that we were at the beginning of World War II. We will be short of logistical support units and we will fail in proper logistical support.

Logistics at Guadalcanal

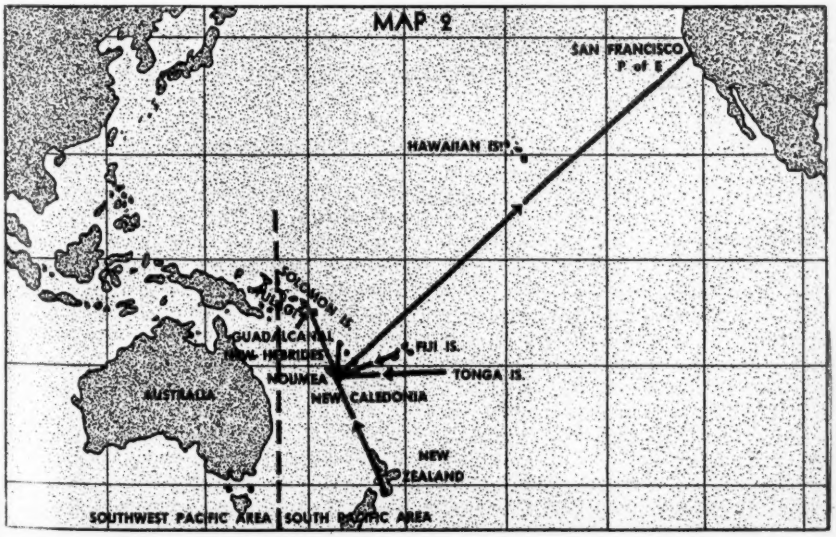
On 7 August 1942, the Marines landed a force of 17,000 on Guadalcanal and Tulagi islands of the Solomon Group. The Tulagi landing was bitterly opposed. This entire Solomon Force, unknowingly, was the advance guard of a force that would eventually reach nearly 75,000 troops before the Japanese were to be driven from the Guadalcanal area. Yet at the onset, neither sufficiently trained logistical troops nor equipment were available, nor was there proper organization of those few on hand. Thus, the first United States offensive operation in the Pacific came close to failure.

Here is a report from official Marine Corps records:

"These Japanese raids, while scoring direct hits on only three ships, had other and more serious consequences. They seriously interfered with unloading of supplies, which had already bogged down for lack of sufficient manpower to keep the beaches cleared. During the night of 7-8



In the early days of World War II, task forces in the South Pacific Area were supplied on a required resupply basis, without requisition, direct from ports of embarkation (see above). Later, a Service of Supply Headquarters was established at Noumea, New Caledonia, and all supplies were requisitioned through it (see below).



A logistical organization was created in the South Pacific, but it had a serious weakness—no trained logistical troops. Above, men of the Americal Division, unloading flour by hand at Guadalcanal. Below, Noumea, New Caledonia, where 91 ships were tied up for lack of men and equipment to unload them.—US Army Photos.

Combat troops without adequate equipment had to handle supplies at Guadalcanal. Upper left, Lunga Beach, the main supply beach, showing the only crane available for the first 5 months of the campaign. Upper right, 350-pound drums of fuel had to be man-handled by the troops. Right, empty shell cases made up only a small part of the salvage on the Island. Lower left, some of the many tons of the badly needed rations that spoiled because of improper handling, cover, and storage. Lower right, another view of rations spoiled due to lack of proper logistical handling.—Photos from the author's files.

August, unloading of transports was halted in order to clear the congestion of supplies already ashore. The entire landing operation had been planned with the expectation that the ships would remain in the area 5 days. In view of the unsatisfactory progress in unloading of supplies, the decision to withdraw earlier was to effect the entire course of the Guadalcanal Campaign."

This decision left 17,000 Marines in the Guadalcanal area with very limited supplies. Of the 60 days' supplies and four units of fire with which the division had embarked, only a third had been unloaded. Ammunition available did not exceed 400 rounds of caliber .30 per man; food stocks were so low that troops were reduced to two meals a day, and part of this ration was Japanese. To make matters worse, resupply was not effected until 19 August, 12 days later.

This initial supply failure pointed up two important facts: (1) sufficient trained logistical units must be provided to do a job; (2) dependence on combat troops with a combat mission for logistical labor pools is a faulty concept. In this case, the troops were occupied with their primary tactical mission—to fight.

During August, September, and October, the Marines fought brilliantly against increasing odds. Supplies were always critical and logistical support, as it was, dribbled through under most adverse conditions. A stream of smaller tactical units filtered into the beachhead to increase the troop strength. On 15 November, the United States Americal Division moved up from New Caledonia to swell the island garrison by thousands, but scarcely one army logistical unit was added or had been added to assist in the logistical struggle.

By Christmas 1942, the 25th Infantry Division, which had been diverted from its destination in Australia, took its place in the perimeter along the Matanikaw River. This section of the front line was still only 3 or 4 miles from Lunga Beach, the main unloading point for the initial beachhead. Again, the troop strength rose by thousands without additional logistical units.

By now, the strength requiring support was nearly 75,000 of all forces, including Allies and native labor corps. This figure included all units drawing rations in the Guadalcanal-Tulagi Area.

The Island Command consisted of a skeleton corps headquarters which fought the corps and administered the beachhead area. This was a reinforced corps on an independent mission, without the logistical support to meet its logistical problem. The corps' tactical mission was to clear the Japanese from Guadalcanal. Its mission should have included, if it did not, the responsibility of establishing a supply base for use in future operations against the Japanese-held islands to the north. The tactical mission was a man-sized job in any language, particularly with the means available. But when you add the establishment of a supply base for future operations, with the same inadequate means, you approach the impossible. Here is the official troop list of XIV Corps Headquarters as of midnight 20 January 1943, about 1 month prior to the termination of the fighting on Guadalcanal:

XIV Corps (Guadalcanal)	*Officers*	*WO*	*EM*
Hq XIV Corps	11	0	0
147th Inf	87	1	2206
Btry C & F, 259th CA	10	0	262
Btry E, F, & Prov Btry H 214th CA (AA)	12	0	398
831st Sig Serv Det	0	0	7
Sig Pigeon Det	0	0	8
Adv Det 97th FA Bn (Pack)	6	0	189
Sec 7th Med Supply Depot	3	0	41
APO Section	1	0	2
151st Chem Co (Decontamination)	1	0	15
2d Plat Co C 60th QM Bn (Ldry)	1	0	68
Finance Det	1	0	2
352 QM Plat (Bkry)	1	0	37
20th Sta Hosp	19	0	157
Totals	153	1	3392

It should be added that the Americal Division had been reinforced by attaching the 51st Ordnance Company (Am); and it had been assigned the 101st Quarter-

master Regiment (less 1 battalion), and the 101st Medical Regiment, in lieu of the present division quartermaster company and medical battalion. Both regiments were well under strength. In addition, the Navy had a naval base unit, including a boat pool, and several construction battalions on the island. All of these units assisted in the logistical effort, but their primary missions, such as that of the "Seabees," were airfield construction and maintenance. Add to the above strength 2,000 natives, formed into 4 battalions or 500-man labor units who refused to work at night or on Sundays, and you have nearly the complete list of available logistical troops supporting the fighting XIV Corps.

Troops resting from combat had to perform the back-breaking labor of unloading, over open beaches, thousands upon thousands of drums of fuel, and tons upon tons of ammunition and other classes and types of supplies. The work was done by hand, as scarcely any handling equipment was available. In the cemetery, the heroic dead were interred without the services of even a graves registration platoon. The improvised transportation situation was pitiful, especially during rainy weather. Tons of rations spoiled on the damp ground for lack of proper logistical handling and suitable shelter. Maintenance was at an extremely low level.

This was a heroic struggle, done the hardest way possible, because of lack of peacetime preparations. What a logistical division could have done, or even a logistical regiment of an organized logistical division, if it had been available to follow the landings or to assist during the build up, should be clearly evident.

This same experience occurred at Munda, Bougainville, along the coast of New Guinea, and on many other islands. It was 2 years or more before some semblance of a "logistical division" was set up in the various forms of ASCOM's, Base Sections, and Service Commands, to follow in the wake of the landing forces.

Failure to appreciate in peacetime the necessity and magnitude of the logistical support problem was the cause of it all. A lack of proper training and discipline in many of the logistical units which were hurriedly formed was evidenced not only throughout the war but particularly just after VJ-day.

These historical facts can be summarized as follows: (1) the fighting forces must be supported wherever they are, (2) this support falls into distinct categories of supply, evacuation and hospitalization, transportation, service, and miscellaneous; and (3) units of the logistical division type must be organized, trained, and disciplined in peacetime, and ready to support our fighting forces in time of war.

The trained logistical division is needed in the Army for the following reasons:

1. Logistics is as important as tactics.

2. A trained logistical division is equally as important as a trained fighting division.

3. The efficient and timely support of fighting forces demands a trained logistical division.

4. It is as unreasonable to piece together a fighting division of strange units just prior to battle as it is to gather together just prior to use a logistical commander, a green staff, and strange units for logistical support of an amphibious assault, and then call them a base section, a service command, or an advance section.

5. Regardless of the approach to the logistical problem of supporting a fighting force, without a trained logistical division the resulting organization will be a headquarters and the logistical units necessary to carry out the mission of support, which in reality will be an untrained, hastily organized, heterogenous sort of a logistical division.

The argument that a logistical division or a similar pre-packaged logistical support unit is not needed and will not be able

to perform all the large or small logistical support tasks as found in modern warfare is as absurd as a statement that an infantry division is not needed because it cannot perform all types of tactical tasks. It is a fact that an infantry division has a definite role, and it is so organized that it can be operated as combat teams, be employed as a unit, or be reinforced. Divisions are grouped to form corps. Logistical divisions can be organized similarly. Like the infantry division, a logistical division could be tailored for desert, mountain, or jungle operations.

If all commanders will analyze the premises on which Draft Field Manual, *The Logistical Division* is based, and if they will study our logistical fiascoes of World War II, it will become evident why such a unit is a "must" and should be vigorously supported. Perhaps the proposed logistical division needs tailoring, but the basic idea is sound.

A complete lack of appreciation of the logistical support problem by the majority of troop commanders had led to: (1) failure to study and stress the development of the logistical phase in peacetime; (2) failure to provide proper logistical support in wartime.

The following quotation from Draft Field Manual, *The Logistical Division* is pertinent:

"The Logistical Division is an extremely flexible organization and can be employed upon diverse missions. Because it is a trained, compact, integrated unit, it can provide logistical support in a greater measure and with greater economy of time, personnel, and matériel than could a hastily organized, untrained, or indefinitely controlled organization. It can proceed from one mission assignment to another, or be expanded to meet any logistical support situation. Appropriate missions for the Logistical Division (reinforced if necessary) are:

a. Support of an independent corps.

b. Operation of a section (advance, intermediate, or base) of a communications zone.

c. Support of large or small amphibious or airborne task forces.

d. Support of hastily organized large combat forces in a fast moving operation."

The present organization of the Logistical Division, even though on an experimental, temporary basis, is a big step in the right direction to fill a definite void in our military framework.

The solution to our logistical problems can be easily resolved. Create an organization with the necessary commander, staff, units, and personnel. Give this organization the proper equipment to do the job. Train and discipline it like the combat infantry, and identify it with a shoulder patch. There will then exist a type of a Logistical Division that can admirably support the combat troops.

To save themselves in order to win the battle, the American GI must be the best equipped, the best protected, and the man with the lightest load. This includes his rifle, his ammunition, his clothing, his food. I don't believe that American ingenuity has been completely applied to this ultimate economy-plus-effectiveness problem.

General Omar N. Bradley

The Atlantic Pact and Germany

F. O. Miksche
Formerly Lieutenant Colonel, Czechoslovakian Army

The views expressed by the author of this article are his own and their publication does not constitute endorsement by the Department of the Army or the Command and General Staff College.—The Editor.

THERE can be no doubt that it was the Atlantic Pact which gave rise to Moscow's decision to resume discussion of the German problem. An awakened world conscience and the instinct of western civilization for self-preservation caused the Kremlin's leaders to change their tactics.

But such a change of Soviet policy does not by any means imply that the Soviet leaders intend to abandon their chief aim, which is the conquest of the world for international communism. Only their tactics change from time to time, according to circumstances.

Lenin said: "The new policy is a retreat as we have taken more than we can keep. Having carried on an offensive for many years in a devastated and ruined country, where the material conditions for consolidating our position were missing, we had to withdraw . . . we shall retire until we are again in a position to resume the offensive—we must find something to hold on to. . . ." His words carry the same message to the communists of today.

Physical Balance of Power

If this is Stalin's aim as well, perhaps his reasoning is sound, from his viewpoint. Would it not be possible, for the time being, to pacify the somewhat alerted West by an apparently friendly policy? The naive world has suffered a wave of illusions since the Paris Conference. What is apparently lost sight of is that a mental balance of power must also be accompanied by a physical balance of power. Or do some of the American leaders really believe that the mere signing of the Pact will suffice? A diplomacy which is not backed by armed force is just as impossible as trying to run a business without money.

A good deal of what has been written about the Atlantic Pact is exaggerated. Some of the views expressed give the impression that people were saying: "We have decided to build a new house—the plans are ready, the foundation is laid, and we can move in tomorrow." Unfortunately, it is not as easy as that. The Atlantic Pact, as it stands today, is only a plan. Like the construction of a large building, at least 3 to 5 years will be required to develop it into a reality. Anything might happen in the meantime, especially in these times when matters develop so quickly. Will Moscow be prepared to stand by quietly during such a period?

At present, Europe is practically de-

In this analysis of the cold war between the East and the West, the author contends that Germany is the key to the defense of Western Europe, loss of which would be the "beginning of the end of America."

fenseless, and this state of affairs will improve only in relation to the energy with which attempts are made to settle wider problems. Let us remember that time is not altogether working for us. The East will do everything possible to perfect the striking power of its armed forces and, especially, to make progress in the domain of atomic research. Thus, the situation develops into an impelling race between East and West, in which we can only gradually overhaul Moscow's early start.

To achieve a strong position we must solve many problems. Among these are the question of an inter-Allied General Staff and its powers, the standardization of weapons and tactics within the forces of the Atlantic signatories, coordination of war production, and, above all, the organization of the armies themselves. At first glance, some of these problems would appear to be relatively insignificant, but, as a matter of fact, they entail for those nations which have signed the Pact the surrender of many interests and of a part of their sovereignty. The latter will not be achieved without a certain amount of friction, nor until all are brought under the same strategical common denominator!

Western Communists

Another important problem would be the neutralization of the communist parties in the Western European countries. Quite recently, these parties declared their open support for the East in case of war. Inevitably, modern developments tend towards ideological warfare, whereas national interests fade more and more into the background. In the old days, it was an easy matter to distinguish friend from foe. Those who spoke the same language and wore the same uniform were generally in the same camp. In our times, things have changed. Future conflicts will unavoidably assume the form of civil war. Would it be possible, in these circumstances, to declare general mobilization, as was done in the last two wars? Can one trust all citizens of a state with weapons? Should Europe share with Thorez's followers, or those of other communist leaders, the equipment sent by America?

From the purely military point of view, a front on the Rhine or elsewhere held by troops composed partly of doubtful elements and based on a politically unreliable hinterland would not offer much prospect of success. In many countries, the problem of general mobilization is a very delicate question. Its solution involves the altering of existing and almost traditional laws, which in itself would give rise to bitter inner-political dissensions. This again would probably have as its logical sequence a heavy reduction in the numbers mobilized, and a consequent weakening of manpower in important industries or transport services. In the latter, nowadays, it is just as undesirable to employ politically unreliable people as it is in the armed forces. In spite of the vast demands which modern warfare makes on fighting and industrial manpower, it is essential that the political reliability of all persons is examined with the same thoroughness as is required in a medical examination.

The Human Element

On the other hand, the idea that an eventual invasion from the East can be stopped by means of atomic bombing or small professional and highly mechanized armies can be dismissed as unrealistic. It is always the thinking human being that remains the most perfect war machine. Up to the present, there exists no technical instrument as perfect and complete as the human brain. Thus, the individual combatant can very often succeed in destroying the most deadly and complicated engine of war. This can be said without understanding in any way the importance of the massive employment of modern weapons in present-day battles. But here, again, in the midst of vast mechanized armies and

roaring aircraft squadrons, man remains the factor whose soul brings life and action into the machine. Both manpower and machines are necessary on the battlefield. The two are complementary, and manpower can be replaced by machines only to a limited degree.

A war with the East would be fought in Western and Central Europe, as well as in the Middle and Far East. It is inconceivable that these vast spaces could be dominated by machines only. By way of illustration, we could imagine a hunter armed with a modern automatic weapon and 500 cartridges, who is attacked in the jungle by 50 natives. Theoretically, he should be able to annihilate them all. But it is not possible for him to be everywhere at the same time. Consequently, after dispatching 20 of his assailants, he is himself struck down by the 21st using a simple stone. An eventual war against the East would call upon the West for maximum mobilization in manpower, and it could not be undertaken successfully by small expeditionary forces as was the case in the colonial wars.

The aim of the Atlantic Pact is to organize the defense of Europe. This can be compared to the construction of a dam against floods. In order to gauge its correct size, we must know first of all the volume of water and the amount of pressure the dam must withstand. No doubt, in case of war, the Soviet Union would be able, in the first 6 weeks, to put about 120 divisions into the field against the Western Powers in Europe. This number could probably be increased within 6 months by 100 additional divisions. Even then, Moscow would still have enough effectives to employ powerful armies in the Middle East and the Far East. In addition, the West would have to reckon with 30 to 35 divisions from the Soviet satellite countries. The number of Soviet aircraft operating in Europe may be estimated at about 8,000.

The often expressed opinion that Moscow would be unable to overrun Europe because of the difficulty of supplying such vast masses of troops is worthy of examination. As long as there were no contending armies in Western Europe, there would be no major battles. Major battles are the principal cause of consumption of materials in large quantities. Furthermore, the Soviet armies are accustomed to living off the land, and their supply problems are much simpler than those of the Western Powers. According to reports, large reserves of food and gasoline have been accumulated in the satellite countries, which could be used as forward bases.

In estimating its potential forces, the West must of course take into account the actual combat value of the Red Army. As experience showed in World War II, this value is only average, and many satellite troops would be definitely unreliable. Nevertheless, no matter which way one examines the problem, the fact remains that in order to fight the greatest land power of our time the West would be called upon to put vast armies into the field. These armies alone could form the essential shield against invasion, while the air forces assumed the role of the sword striking at the enemy's rear areas. As it has always been in the past, so it is in our own times; the sword and shield must be used alternatively and in conjunction with each other.

The Atlantic Pact Armies

How large would the Atlantic armies have to be in order to successfully defend Europe? In view of our qualitative superiority, certainly the West's armies can be smaller than those of the Soviet. We should not forget, however, that the front would stretch from Holland to the Adriatic coast, a distance of 800 miles. We could only hold this front if we were capable of dominating it in time and space along its entire length. This means not only man-

ning the line but also controlling long lines of communication and a hinterland infected with Communism. For all this the West should, on an average, dispose of a strength equal to two-thirds of the enemy's effectives. About 25 percent of these troops would be required to supervise the areas infected with Communism, especially in France and Italy. What this would mean is shown in the following table:

Troops to be put in the field by various countries in case of a European War:

Country	*In 6 weeks*		*In 6 months*	
	Divisions	*Aircraft*	*Divisions*	*Aircraft*
USA	7		20	
British Empire	10		15	
France	40		60	
Belgium	8		12	
Holland	6		10	
Italy	12		25	
Norway	3-4		5	
Denmark	2-3		3	
TOTAL:	90	4,500-5,000	150	10,000

In order to give an idea of the effort which would be required to build up these vast armies, we might mention that at present all Atlantic states, including Great Britain and the United States forces in Europe could, in 6 weeks, only produce 25 to 30 divisions and 4,500 to 5,000 aircraft. The French army, which in 1939 mobilized more than 100 divisions, can only put 8 in the field today. The Belgian and Dutch armies, which at one time consisted of 18 to 10 divisions respectively, can now only be counted upon for 5 or 6. Effective intervention on land by America could not be hoped for under 3 months. Even then, such help could only be on a limited scale, as both Great Britain and the United States would have to divert a considerable part of their forces to the Asiatic theater. In view of the present state of affairs in Europe, the shortage of materials, and the impossibility of effecting a general mobilization for political reasons, it is doubtful whether the above numbers could be achieved. Even if America delivered the first tanks and aircraft tomorrow, it would take us 3 to 5 years of hard organizing and training to put 60 divisions into the field, counting the British contingents. These forces would, however, only suffice for more or less passive defense of the Kiel Canal and a front along the Rhine and the Alps. There would, therefore, still be a shortage of about 30 divisions.

Limitations of the Rhine Line

Is, however, the Rhine line the best defensive position? In all probability, it has been chosen because the necessary forces for a longer front are not available. From the strategic viewpoint, it would seem that a defense of the Rhine, with a narrow depth to the Ardennes and Vosges would scarcely provide the necessary space for extensive maneuvering. Between this position and the Pyrenees, there is no other obstacle. Loss of the Rhine position would mean that France might be occupied for years and that the Channel Coast would be in enemy hands again.

Would a merely passive holding of a front line bring about a definite decision in the conflict? Modern defense should be dynamic, and counterattack always has been the best form of defense. Would it not be preferable to seize the Bohemian rectangle by a rapid counterthrust? The possession of this important bastion of Central Europe would perhaps enable the West to organize its defense along the line of the Elbe or the Oder and thus provide it with maneuvering space in the rear as far back as the Rhine. The Rhine would thus constitute a second line of defense. Furthermore, such a plan would lessen the danger of air attack on the British Isles, since the air bases for the attacks would be pushed back farther to the east.

The Importance of Germany

While we examine the situation in this light, we cannot help but turn our gaze on Germany. Even today, this country, largely immunized against communism as it is, represents one of the most important

and effective bases in the fight against Communism. In the light of our own interests, it is only natural that we should take account of this nation. How could Germany remain passive in a battle fought on her own territory? In the present circumstances, would it not be far more logical to try to "Atlanticize" Germany than to "neutralize" her? After unfortunately entering World War II with the strategy of 1914, why should we persist in attempting to settle our postwar problems with a diplomatic mentality dating back to 1919? We should not forget that Asia advanced to the banks of the Elbe in 1945 and that, by this fact, Europe's problems were fundamentally altered. In whichever way a strategist sums up the fighting forces, about 30 to 50 German divisions would be essential to the defense of Western Europe. Such a force could give to our strategy a completely different and very advantageous aspect. To those who still fear a resurgence of Prussian militarism, let it be said that there are many ways of preventing such a development.

Of course, it goes without saying that, as things are today, every precaution would have to be taken to bring about the "Atlanticization" of Germany. However, where there is a will there is a way, and much could be done without giving the East cause to accuse the West of disavowing any of our contractual obligations or responsibilities. The introduction of Germany into the comity of Western European nations calls for careful psychological, political, and economic preparation. In this connection, many problems would have to be dealt with which depend primarily upon the West. Other problems would, of course, have to be settled in conjunction with the East. The sooner we handle the former, the sooner we shall improve our position with regard to Moscow.

A "Psychological Peace"

It is true, at the present time, that the West cannot make a proper separate peace with Germany. What prevents us, however, 4 years after the cessation of hostilities, from establishing a state of affairs which we can call a "psychological peace"? What useful purpose can possibly be served in the present state of world affairs by the innumerable inflammatory articles of doubtful taste which constantly appear in the press and which only spread confusion in Europe to Moscow's advantage? It would be wiser to treat the Germans as European citizens with equal rights and privileges and, by effective propaganda, to prepare the way for their entry into the ranks of the Atlantic Powers.

The Paris Conference has shown again that it is not possible to find a *modus vivendi* with the East. It is consequently a waste of time to continue working on present lines. In the present state of world politics, the occupation of Germany has lost its *raison d'être* as an insurance against a new invasion. Surely we are not on the Elbe on account of the Germans, and the reasons why we cannot evacuate from Germany have certainly changed.

Under these circumstances, what is to prevent us from bringing our troops close up to the demarcation line, declaring a militarized zone about 30 miles deep, and handing over the remainder of the occupied territory to the Germans in full sovereignty? No international treaty prescribes the positioning of our troops in Germany. This is left entirely to our own discretion. The Germans, with the possible exception of the Communists, would certainly understand us. The Russians could hardly credit us with bringing up our weak occupation force of 10 divisions to the demarcation line for the purpose of occupying Moscow. The French, if still obsessed with the fear of another German attack, would still have the satisfaction of knowing that their troops were still east of the Rhine. This would be the first step

necessary to get us out of the blind alley into which the illogical policies of Teheran, Malta, and Potsdam have led us.

Whether we like it or not, we ought not to forget that Germany, even Western Germany alone with its 45 million inhabitants, occupies a commanding position on the European chessboard. Surely, nowadays, no one fears the Gestapo spies. If the fear of industrial competition is at the root of the failure to settle these problems, then that in itself is a shortsighted policy, and it will prove incapable of permanently preventing the natural development of events.

To act illogically is to flaunt nature, hence the danger of persisting in our present policy. Our mistakes could easily lead the German people into a state of despair which would only benefit the East. All of Europe is exposed to the same danger, the greatest which ever threatened the Continent. Hitler once had Stalin at his back, but who is at the back of Stalin? Stalin has no fear on this score, and his empire reaches from the Elbe to Hong Kong.

Bringing Germany within the Atlantic Pact would also provide an opportunity of ending once and for all the traditional enmity between France and Germany. The idea of war between these two great nations would become an anachronism, and they would become allies like the British and the French. Only the closest union between the three principal Western European nations—England, France, and Germany—with the support of America, can restore the balance of power in Europe and thus pave the way for a federation of Europe. The great politicians of the nineteenth century—Talleyrand, Metternich, and Lord Castlereagh—would not have hesitated to take such a decision. They did not fear to take the responsibility of establishing a long-term policy.

Stalin well knows that without Germany the defense of Europe is almost impossible, and that in many countries, thanks to his Fifth Columns, Western strategy is built on shifting sand. Do the strategists and statesmen of the West think likewise? Or are they still obsessed by the fear of another German invasion? However that may be, responsible authorities should bear in mind that the stronger the European armies are, the less chance there is of war. If war should prove inevitable, the prospect of winning more quickly is enhanced. The shorter the conflict, the smaller the losses in human lives and property. The farther we push our defense lines to the East, the less favorable would be the prospects for a Soviet invasion of France and air attacks against Great Britain. Today, we must rearm Germany if we want to defend France.

"Time Works for Stalin"

Let us not forget that time works for Stalin. The Soviet giant requires time to digest his conquests, especially China. Woe to us if we allow ourselves to be deceived by such tactics. Who will restore the balance of power in the world if Moscow succeeds some day in swallowing Western Europe? The West cannot retain forever the monopoly of the atomic bomb. This problem may be viewed differently from the other side of the Atlantic Ocean, but in any case, the loss of Western Europe would be the beginning of the end of America.

A Problem of Decision

Lieutenant Colonel John G. Ondrick, *Infantry*
Instructor, Command and General Staff College

THE following map exercise problem, with certain modifications and less the situations and requirements concerning personnel and logistical matters, is one that has been presented to students at the Command and General Staff College. The problem was designed to emphasize the decisions of a commander.

As given at the Command and General Staff College, the problem contained 12 requirements. Each requirement was presented to the students in chronological order as the situation developed from the initial order by the I Corps Commander to the completion of the problem. After each requirement was solved by the students, a pertinent discussion was held and a school solution was issued to the students prior to the issuance of the succeeding requirement. In this manner, all students had a common base point from which they started in solving a new requirement. Furthermore, each requirement was preceded by a pertinent, special situation. Maps and coordinates listed herein are for the reader's convenience if the designated maps are available. It is not necessary to possess the specific maps referred to in order to solve the problem.

* * * * *

1. GENERAL SITUATION.—*a. Map.*—Strategic Map UNITED STATES, 1:500,000, WASHINGTON—NEW YORK composite.

b. Ground.—(1) Blue.—(a) First Army is participating in a general offensive, driving northeast along the axis: WASHINGTON (47-60)—BALTIMORE (49-62)—WILMINGTON (52-63) with the mission of capturing NEW YORK. Blue armored cavalry, operating on the First Army left flank has reached MECHANICSBURG (S48-65) where it has encountered a Red force guarding the approaches to the bridge between LEMOYNE (S48-66) and HARRISBURG (S48-66). Blue armored cavalry reported that this force is the only Red force south of the JUNIATA River (north and west of HARRISBURG) and that this force is estimated to be one combat team from the Red 6th Inf Div. Blue armored cavalry is now engaged with this force in an attempt to seize the bridge to HARRISBURG.

(b) The I Corps, on the west, composed of the 1st, 2d, 3d, and 4th Inf Divs, with supporting combat and service troops, was given the mission of destroying Red resistance in its advance along the axis: HANOVER (S48-64) — YORK (S48-64) — WRIGHTSVILLE (S49-65) to the SUSQUEHANNA River. On 041300 Jul, elements of the I Corps captured WRIGHTSVILLE and the bridge over the SUSQUEHANNA River at COLUMBIA (S49-65) intact.

The map exercise problem given here emphasizes the decisions that a commander must make. The same problem in greater detail has been presented to the students of the Command and General Staff College

(c) Elements of the 2d Inf Div immediately occupied the high ground just north and east of COLUMBIA.

(d) Blue 201st Armd Cav Regt (L), operating under control of I Corps, crossed the SUSQUEHANNA River 041430 Jul and began to move to the north and west of COLUMBIA with the mission of reconnoitering as far as MIDDLETOWN (S48-65) and the high ground northeast of it and to gain contact with the enemy in the area.

(2) Red.—It is reported that Red is concentrating a large force of all arms and services in the vicinity of JERSEY SHORE (S47-69), 125 miles north of COLUMBIA. The Red 6th Inf Div is reported to be in the HARRISBURG (S48-66) area. Red's organization is substantially that of Blue's.

c. Air.—(1) Blue.—(a) First Tactical Air Force is supporting the First Army.

(b) Blue has air superiority but the Commanding General, First Army, has ordered priority of supporting air missions to First Army elements other than I Corps. Consequently, I Corps has received only a small portion of air support missions available to First Army.

(2) Red.—(a) Red's principal air effort is being directed against Blue air.

(b) First Army estimates that, weather permitting, Red can mount a maximum of approximately 60 fighter-bomber and 75 medium bomber sorties daily against ground targets in the First Army area. This is derived from a striking force of 20 fighter-bombers and 25 medium bombers.

2. SPECIAL SITUATION. — *a. Map.*—PENNSYLVANIA, 1:50,000, LANCASTER—HUMMELSTOWN.

b. Immediately upon the capture of the bridge at COLUMBIA, the Commanding General, I Corps, directed elements of the corps to seize MANHEIM (84-64) and LITITZ (94-64).

c. On 041430 Jul, the Commanding General, 1st Inf Div, received an order from the corps commander which assigned the 1st Inf Div the mission of protecting the corps left flank between the line: MANHEIM (84-65)—COLEBROOK (73-75)—CAMPBELLTOWN (66-79) and the SUSQUEHANNA River south of HARRISBURG and of securing the crossing of the remainder of the corps at COLUMBIA. The order further stated that the division would commence its movement across the SUSQUEHANNA without delay; that it was estimated that the 1st Inf Div would be relieved of its mission in about 3 days at which time it is believed that offensive operations may be initiated in the direction of HARRISBURG; and that effective immediately the 711th Hv Tk Bn, 201st Armd Cav Regt (L), and the 601st FA Group (611th FA Bn, 155-mm How SP; 612th FA Bn, 155-mm gun SP; 613th FA Bn, 8-in How SP with 1 battalion of AAA) are attached to the 1st Inf Div.

d. Sufficient transportation is available to motorize the entire 1st Inf Div.

e. The Commanding General, 1st Inf Div, stated that he would move in a column of regimental combat teams along the axis: COLUMBIA—MOUNT JOY, thence northwestward along Highway 230. Combat team organization will cease on division order subsequent to the crossing of the river.

3. SPECIAL SITUATION CONTINUED.—*a.* The Commanding General, 1st Inf Div, in execution of the corps commander's orders, ordered the crossing without delay. He assigned the following missions to the regimental combat teams:

(1) Regimental combat team 1.—Advance COLUMBIA—MOUNT JOY and thence along the axis of Highway 230; seize the high ground 1,000 yards southeast of ELIZABETHTOWN.

(2) Regimental combat team 3.—Move to MOUNT JOY (74-59) and await further orders.

(3) Regimental combat team 2.—Move to NEWTOWN (74-54) and await further orders.

b. The division trains were directed to move to * * * * *

c. Accordingly, regimental combat team 1 crossed the SUSQUEHANNA River and moved in the direction of ELIZABETHTOWN behind friendly cavalry. The advance of the cavalry was stopped about 3,000 yards southeast of ELIZABETHTOWN. As a result of this action, regimental combat team 1 was forced to dismount in rear of RHEEMS (66-61) at 042000 Jul and passed through the cavalry units in contact. At 2200, the elements of regimental combat team 1 in contact were stopped by increasing Red resistance.

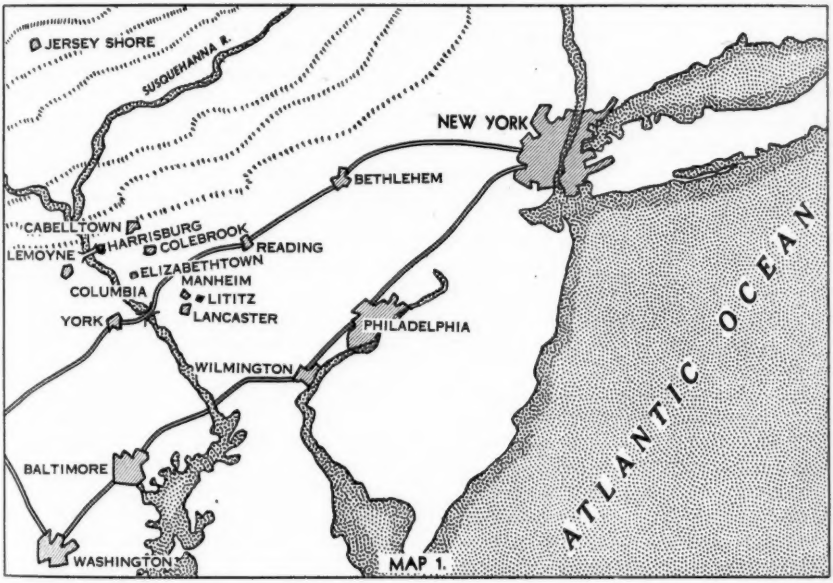
d. At 050430 Jul, regimental combat team 1 resumed its attack against the Red forces opposing its advance and by 0730 the situation was as shown on Map 2. Prior to this time, it became apparent to the commanding general that a Red defensive position had been uncovered and that no further advance was to be expected of regimental combat team 1.

e. At 050645 Jul, the division commander directed his general staff to be prepared to present to him at 0715 their staff estimates of the situation.

f. The G-2, 1st Inf Div, has been making a continuing estimate of the situation before and during the action of regimental combat team 1. By 050645 Jul, he had the following information from various sources available to the division (RCT 1, 201st Armd Cav Regt (L), G-2 air sources, I Corps, etc.):

(1) The enemy is presently occupying hastily organized defensive positions and has been observed improving and extending them to the flanks and rear.

(2) Prisoner of war interrogation (201st Armd Cav Regt (L)) indicates that Red is organizing ROUND TOP (57-72) and high ground 1,500 yards south of FUHRMAN'S School (61-74).



(3) Air reconnaissance and the units in contact report no substantial traffic moving into the ELIZABETHTOWN area and no assembly of Red troops observed in the main battle position.

(4) The 201st Armd Cav Regt (L) reports that at 050615 the enemy was observed laying mine fields along LITTLE CHICKIES Creek northwest of MASTERSONVILLE (75-69).

(5) I Corps reports that three Red underwater demolition personnel had been killed while attempting to place explosives on bridge supports at WRIGHTSVILLE.

(6) Interrogation of prisoners of war and several deserters indicates that Red will, at the earliest practicable moment, attempt to destroy Blue forces east of the SUSQUEHANNA River; further, the above sources indicate that Red will hold his present position until reinforced.

(7) A document found on a Red officer prisoner of war indicated that in an order of the day, Red Supreme Commander demanded that the enemy (meaning Blue) forces must be kept west of the SUSQUEHANNA River.

(8) Radio intercept reports from higher headquarters reveal increased activity between Red high command installations. Analyses of intercepted messages indicate that Red is attempting to expedite an attack against I Corps troops which have crossed the SUSQUEHANNA River.

(9) Front-line commanders report the enemy demonstrates nervousness and immediate reaction to any movement by our troops.

(10) Since daylight 05 Jul, Blue armored cavalry has been heavily engaged with Red at MECHANICSBURG in an attempt to seize the bridges at HARRISBURG.

g. Air reconnaissance reports that at 050700 it observed a column of about 100 empty trucks moving into JERSEY SHORE. No troop movements from JERSEY SHORE were observed at that time.

h. All streams in the area are fordable.

i.—(1) The weather forecast for the period 5-8 Jul is continued clear and warm.

(2) EENT, 5 Jul: 2100
BMNT, 6 Jul: 0335
Full moon, 5-6 Jul

4. *a.* You are the G-2, 1st Inf Div. In your continuing estimate of the intelligence situation, you have been assembling all of the factors which you will present to the division commander at 0715. Further, you have obtained essential information from many sources and you have kept the other staff sections abreast of your estimate. Prior to crossing the SUSQUEHANNA River you began to assemble all available information concerning the terrain characteristics of the area of operations.

b. Reproduced below are pertinent extracts of the intelligence estimate.

* * * * *

(CLASSIFICATION)*
G-2 Section, 1st Inf Div
RJ (76-59)
050715 Jul ----------

Map: PENNSYLVANIA, 1:50,000, LANCASTER—HUMMELSTOWN.

1. MISSION.—Protect the I Corps left flank between the line: MANHEIM (84-65)—COLEBROOK (73-75)—CAMPBELLTOWN (66-79) and the SUSQUEHANNA River; to secure the crossing of the remainder of I Corps at COLUMBIA.

2. THE SITUATION AND COURSES OF ACTION.

a. Considerations affecting the possible enemy courses of action and our mission.

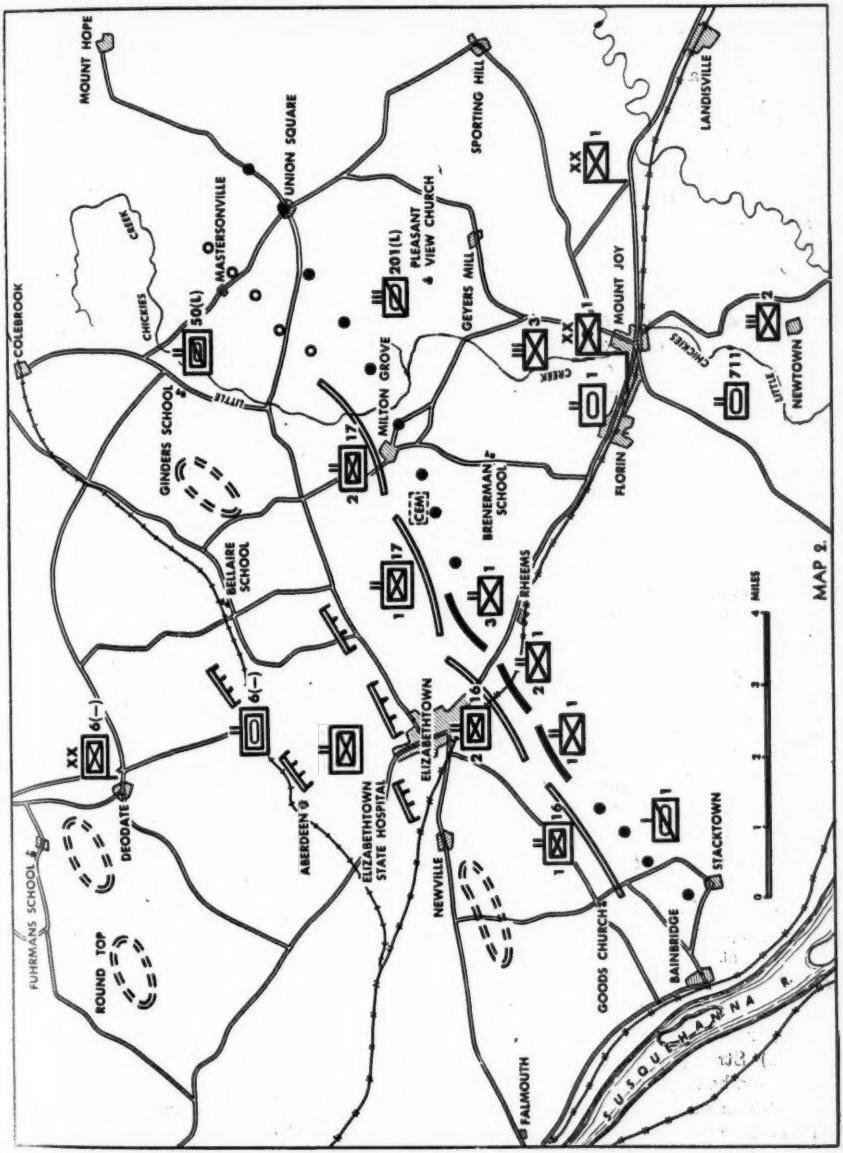
(1) Characteristics of the area of operations.

(a) Weather.—Omitted.

(b) Terrain.

(i) The critical terrain features are the high ground 1,000 yards southeast of ELIZABETHTOWN (64-64) astride Highway 230, the continuous ridge starting at FALMOUTH (54-62) and running southwest-northeast behind ELIZABETHTOWN culmi-

* Would be SECRET.


MOUNT HOPE
UNION SQUARE
SPORTING HILL
LANDISVILLE
MASTERSONVILLE
CREEK
CHICKIES
50(L)
201(L)
PLEASANT VIEW CHURCH
GEYERS MILL
MOUNT JOY
COLEBROOK
LITTLE
MILTON GROVE
NEWTOWN
GINDERS SCHOOL
BRENEMAN SCHOOL
FLORIN
BELLAIRE SCHOOL
RHEEMS
ELIZABETHTOWN
ABERDEEN
ELIZABETHTOWN STATE HOSPITAL
NEWVILLE
STACKTOWN
DEODATE
FUHRMANS SCHOOL
ROUND TOP
GOODS CHURCH
BAINBRIDGE
FALMOUTH
SUSQUEHANNA R.
MILES
MAP 2.

nating in the hill mass 10 miles northeast of ELIZABETHTOWN, the high ground in the vicinity of NEWVILLE (61-64) and ELIZABETHTOWN State Hospital (67-66), the high ground running south from BELLAIRE School (67-69), the high ground in the ROUND TOP (57-72) area, and ridge running south from DEODATE (62-71) to ABERDEEN (62-67), which divides the low ground lying immediately north and west of the ridge between (54-62) and (74-72). Numerous and excellent points of observation exist throughout the area. The road net is excellent. Fields of fire throughout the area range from excellent to poor, being limited by the relief and drainage system. No impassable obstacles to foot or armored movement exist in the area except the SUSQUEHANNA River. Excellent cover and concealment is offered by ELIZABETHTOWN, the various patches of woods, the high ground immediately in rear of ELIZABETHTOWN that runs from southwest to northeast, and the high ground north and east of MIDDLETOWN.

The avenues of approach into the enemy's position from our present positions are generally cross-compartments with one exception, the high ground running south from BELLAIRE School.

There are downhill slopes suitable as avenues of approach by the enemy for the envelopment of our flanks. The immediate avenue of approach by the enemy into our position is the high ground just east of ELIZABETHTOWN.

(ii) The terrain is suitable for an attack or a defense by the enemy in his present position. The SUSQUEHANNA River will restrict movement by the enemy around our southwest (left) flank.

* * * * *

(2) Enemy situation.

(a) Strength: five plus infantry battalions, one heavy tank battalion (minus), one battalion of armored cavalry (light), and an estimated two battalions of field artillery with a possibility of a third battalion in the area. 20 fighter-bombers and 25 medium bombers.

(b) Composition: Units consist of elements of the 16th and 17th Inf Regts, the 6th Hv Tk Bn (minus), all parts of the Red 6th Inf Div; the 50th Armd Cav Bn (L); and elements of the Div Arty.

(c) Dispositions: see Map 2.

(d) Status of supply: Assumed to be normal.

(e) Reinforcements: An unknown number of Red troops (possibly one battalion) in the vicinity of ROUND TOP. A Red force of all arms and of undetermined size located in the vicinity of JERSEY SHORE.

b. Enemy capabilities.

(1) Enumeration of capabilities. The enemy can:

(a) Attack now, anywhere along our front with five battalions of infantry, a heavy tank battalion (minus), and a battalion of armored cavalry (light), supported by an estimated two or more battalions of field artillery.

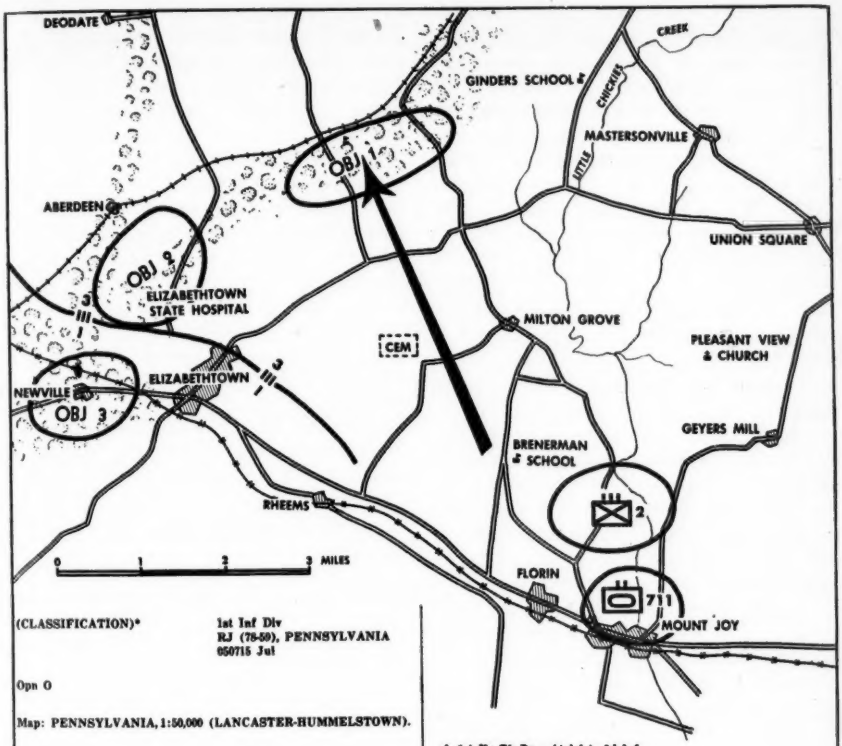
(b) Defend now in his present position with strength listed in 2*b*(1)(a) above.

(c) Reinforce his troops in contact for attack or defense with the troops from ROUND TOP in 2 hours and with the force of all arms and undetermined size from the vicinity of JERSEY SHORE beginning at 051440 if motorized. (Red cannot disengage his forces at MECHANICSBURG to reinforce at ELIZABETHTOWN today.)

(d) Using forces now in the area, delay now on successive positions using his present position as the first delaying position.

(e) Withdraw tonight during the hours of darkness beyond the ROUND TOP area.

(f) Based on an operational air strength of 20 fighter-bombers and 25 medium bombers, weather permitting, attack anywhere in our area with a maximum of 60 fighter-bomber and 75 medium bomber sorties daily.



(CLASSIFICATION)* 1st Inf Div
RJ (78-50), PENNSYLVANIA
050715 Jul

Opn O

Map: PENNSYLVANIA, 1:50,000 (LANCASTER-HUMMELSTOWN).

1. ----------

2. Div Atks 051110 Jul, penetrates En Pos, seizes high Grd Vic ELIZABETHTOWN STATE HOSPITAL. LD is LC

3. *a. 3d Inf.*
Atchd: 1st Hv Tk Bn.
Penetrate along indicated axis and seize Obj 1 and continue the attack to Obj 2.

b. 1st Inf.
Continue Atk. Avoid ELIZABETHTOWN initially, and seize Obj 3. Be prepared to seize Obj 2.

c. Div Arty.
(1) 1st FA Bn: D/S 1st Inf.
(2) 2d FA Bn: G/S: Reinf fires 3d FA Bn.
(3) 3d FA Bn: D/S 3d Inf.
(4) 4th FA Bn: G/S Reinf fires 3d FA Bn.
(5) 611th FA Bn: G/S: Reinf fires 1st FA Bn.
(6) 601st FA Gp (—): G/S.
(7) 1st AAA AW Bn:
(a) Protect 3d Inf until Atk begins.
(b) Protect Div Res.
(c) Protect Div Arty.
(d) Be prepared to protect Div reorganization on new Pos.

d. 1st Hv Tk Bn.—Atchd to 3d Inf.

e. 711th Hv Tk Bn.—Atchd to 2d Inf.

f. 301st Armd Cav (L).
(1) Protect Div right flank and maintain contact with friendly Elms MANHEIM.
(2) Upon capture Div Obj be prepared to cover Div reorganization on new Pos.

g. 1st Rcn Co patrol east bank SUSQUEHANNA River from MIDDLETOWN south to friendly Trps Vic COLUMBIA.

h. 2d Inf.
Atchd.—711th Hv Tk Bn.
(1) Res.
(2) Be prepared on Div O to pass through 3d Inf—
(a) To seize Obj 2.
(b) To seize Obj 1.

4. ----------

5. ----------

A
MAJ GEN

(a) B
G-3
Distr: A
* Would be SECRET

MAP 3.

(2) Discussion and analysis.—(a) Although the enemy can attack now, anywhere along our front, with the forces available to him in the ELIZABETHTOWN area, there are no positive indications that he will adopt this capability because—

(i) Red has demonstrated nervousness and immediate reaction to any movement by the units in contact since the previous night and has stopped any further advance by the 1st Inf; furthermore, he himself has made no attempt to advance.

(ii) From our knowledge of his dispositions, his troops are extended on a broad front.

(iii) The enemy is laying mines along LITTLE CHICKIES Creek.

(iv) Throughout his area, the enemy is improving and strengthening his positions.

(v) No substantial traffic has been observed moving into the ELIZABETHTOWN area and no assembly of Red troops has been observed in his main battle position.

(vi) From our knowledge of Red dispositions and strengths, his reserves in the ELIZABETHTOWN area are limited.

(b) A defense by the enemy in his present positions is indicated by—

(i) His improvement and strengthening of his positions throughout the area.

(ii) The fact that he has been and is sensitive to movement by our units in contact since the previous night and the fact that he has stopped any further advance by the 1st Inf; further, he is not making any attempt to advance.

(iii) The fact that, from our knowledge of his dispositions, he has assumed a defensive position.

(iv) Interrogation of prisoners of war and deserters who state that Red will hold his positions until reinforced.

(c) There are no positive indications that the enemy is reinforcing his present positions in the ELIZABETHTOWN area. However, since the capture of the bridge at COLUMBIA by our forces, there have been increasing and positive indications that Red will make every attempt to drive our forces to the west of the SUSQUEHANNA River. Intercepted radio traffic between Red high command installations, a captured Red order of the day, demanding that Blue be kept west of the SUSQUEHANNA River, and the interrogation of prisoners of war and deserters—all support the fact that our bridgehead across the SUSQUEHANNA River is a major loss to Red, and that he is desirous of mounting an attack to drive our forces west of the SUSQUEHANNA. Further, interrogation of prisoners of war and deserters indicates that Red forces now in contact with the 1st Inf Div will hold their positions until reinforced. Therefore, present indications are that Red will reinforce his elements now in contact and attack.

(d) Enemy air attack is a continuing threat.

(3) Relative probability.—(a) First.—A combination of a defense of his present positions with the forces now available to him followed by an attack when reinforced.

(b) Second.—An attack with the forces now available to him in combination with reinforcement after the attack is launched.

* * * * *

Note.—The relative probability of adoption of courses of action by the enemy is established only if there are positive and verified indications which will justify such action. A danger of establishing a relative probability of adoption may result from using indications which are planted by a clever enemy. If the indications are not positive and cannot be verified, no attempt should be made to state the relative probability.

5. FIRST REQUIREMENT.—Write paragraph 2*c* of the Commander's Estimate, i.e., list those practicable courses of action for the accomplishment of your mission

which you will carry forward for further analysis.

6. SECOND REQUIREMENT.—Write paragraph 3 of the Commander's Estimate, i.e., analysis of opposing courses of action.

7. THIRD REQUIREMENT.—Write paragraphs 4 and 5 of the Commander's Estimate, i.e., comparison of own courses of action to include a summary and the decision.

8. FOURTH REQUIREMENT.—As G-3, 1st Inf Div, prepare your recommendations in paragraph 3 only of the operational order, to implement the decision. (Combat team organization has ceased to exist. An overlay type order is suggested.) In your recommendations, include only the following:

a. Objective(s).

b. Boundary or boundaries between regiments.

c. Direction(s) of attack, if necessary.

d. Location of the division reserve.

e. Missions for—

(1) All infantry regiments.

(2) Both heavy tank battalions.

(3) Division artillery to include attached units.

(4) 201st Armd Cav Regt (L).

(5) 1st Rcn Co.

9. A solution and discussion to the First Requirement.—*a. Solution.*—Courses of action recommended for consideration:

(1) Attack on division order not earlier than 1250; envelop the enemy southwest (right) flank along the axis: STACKTOWN (60-57)—GOODS CHURCH (59-61)—thence northeast, seize the high ground in the vicinity of NEWVILLE, and continue the attack to seize the high ground in the vicinity of ELIZABETHTOWN State Hospital (63-66).

(2) Attack on division order not earlier than 1110; penetrate the enemy position along the axis; BRENERMAN School (71-62)—CEM (69-64)—BELLAIRS School (67-69)—thence southwest and seize the high ground in the vicinity of ELIZABETHTOWN State Hospital (63-66).

(3) Attack on division order not earlier than 1320; envelop the enemy northeast (left) flank along the axis: UNION SQUARE (77-67)—MASTERSONVILLE (75-69)—GINDERS School (72-71)—thence southwest, and seize the high ground in the vicinity of ELIZABETHTOWN State Hospital (63-66).

Note.—The times given in this solution are based upon certain school factors currently in use. Any solution with a time of attack such as "as quickly as possible" or "without delay" is acceptable.

b. Discussion.—(1) General.—In selecting courses of action, only those which will accomplish the division mission are considered. Of those courses of action which are considered, certain ones have obvious disadvantages which allow their elimination without further analysis. The remainder of the courses of action are then retained for analysis and comparison (pars 3 and 4 of the Commander's Estimate) in order to arrive at a recommendation as to the course of action to be adopted.

(2) Courses of action not considered.—The 1st Inf Div's mission is to protect the I Corps' left flank and to secure the crossing of the remainder of the corps at COLUMBIA. Though the exit of the bridge at COLUMBIA is out of enemy artillery range, any enemy penetration of about 4,000 or 5,000 yards in the present 1st Inf Div position would bring the bridge under enemy medium artillery fire and would place the 1st Inf Div in an unfavorable defensive position. Furthermore, the present 1st Inf Div position is not a strong one nor a desirable one, defensively speaking. Any penetration by the enemy would permit him to fight along ground favoring an attacker. In addition, the 1st Inf Div has enough superiority at present to attack, but this superiority may not exist tonight or tomorrow. Hence, a defense by the 1st Inf Div was not considered.

(3) Courses of action eliminated with-

out further analysis.—(a) Based on considerations of Red dispositions, strength, and nature of the terrain, a penetration of the enemy position through ELIZABETHTOWN and for a lateral distance of about 2,000 yards on either side of the town, and a wide envelopment of the enemy left flank were eliminated. In addition, because of present 1st Inf Div superiority, and because Red can reinforce by nightfall, a night attack was eliminated. Because of present 1st Inf Div superiority and because of Red's capabilities to reinforce, an attack tomorrow morning was eliminated.

10. A solution to the Second Requirement—Analysis of Opposing Courses of Action.

a. If the enemy defends.

(1) With the forces now present in the area against—

(a) Our envelopment of his left flank. We can initially avoid his main position but the ground is such that any extension of his flank even though with numerically weak forces will force us to fight on terrain that decidedly favors the defender.

(b) Our envelopment of his right flank. The ground is suitable for combined arms but the enemy strength in the area is much greater than in the other envelopment, will subject our attack to almost the same fires as in the penetration, and the river restricts our movements.

(c) Our penetration. His reserve battalion can be used to add only slight depth to his present position.

(d) Therefore, it is felt that because of his insufficient reserves, his lack of depth, and his numerically inferior forces he cannot defeat either of the envelopments or the penetration. However, the envelopments permit him more time to get set for our attacks and increase his reinforcement capability.

(2) If the enemy is permitted to defend successfully until reinforced in strength, he will probably be able to contain our attack, seize the initiative, and force us on the defensive under unfavorable conditions. Therefore, time is of great importance.

b. If the enemy attacks.

(1) With forces now present in the area: With our present over-all superiority of force, an attack by the enemy can be defeated decisively and quickly, thereby assisting us in moving forward after a short delay under all three of our courses of action.

(2) With the forces now present in the area and then reinforced in strength by the troops in the vicinity of JERSEY SHORE, his attack can be defeated, and because of the time required for him to reinforce, he can interfere more with the envelopments than he can with the penetration.

c. If the enemy is permitted to defend successfully and then follows with an attack when reinforced in strength, he will probably defeat any of our attacks and then very seriously endanger the accomplishment of our mission.

d. If the enemy delays on successive positions or withdraws, he will favor the accomplishment of our mission.

e. The enemy's air capability will have an equal effect on all courses of action.

11. A solution to the Third Requirement and Discussion.—*a. Comparison of own courses of action.*

(1) Summary.

(a) Characteristics of the area of operations.

(i) The weather favors equally all courses of action.

(ii) The terrain is more suitable for the penetration than either of the envelopments because, in the area of the penetration except for about 1,000 yards of low ground forward of the present line of contact, the axis of the attack coincides with high ground; in an envelopment of the en-

emy northeast (left) flank, there are two cross-compartments; and in enveloping the enemy southwest (right) flank, our forces will have to fight uphill against constant observation with lateral movement being restricted.

(iii) Enemy situation.—The enemy flanks are open. However, enemy dispositions are favorable to a penetration because he is overextended.

(iv) Own situation.—Our present dispositions favor the penetration over either of the envelopments because of the times of attack involved and the shifting of both assault and supporting troops.

(v) Analysis of opposing courses of action.—The penetration is favored over either of the two envelopments because the enemy cannot reinforce until 3½ hours after the penetration is launched, whereas he can begin to reinforce at about 1 hour 20 minutes to 1 hour 50 minutes after the attack depending upon which of the envelopments is launched.

(2) Comparison.—While the enemy flanks are open and time does not preclude either of the envelopments, the penetration is favored because the delay in executing the attack to envelop the enemy positions will permit Red to use more effectively his reinforcement capability. Further, terrain and enemy dispositions are such that Red can counter the envelopments to the extent that there is no assurance that either of the envelopments will result in a speedier capture of the division objectives. The penetration itself is favored by Red's overextension, by the fact that Red has little depth to his position and few reserves, and by the better control of forces inherent in the execution of a penetration.

b. Decision.—Attack on division order at 1110; penetrate the enemy position along the axis: BRENERMAN School (71-62)—CEM (69-64)—BELLAIRE School (62-69), thence southwest and seize the high ground in the vicinity of ELIZABETHTOWN State Hospital (63-66). * * * *

c. Discussion. — (1) Draft, Field Manual 100-5, states in paragraph 9.15, "When the enemy takes up a defensive position, the commander of the attacking forces should consider the possibility of turning the enemy out of his position and forcing him to withdraw and fight on ground more favorable to the attacker." In this situation, the enemy can block against either of our envelopments by refusing his flanks. Next considering the execution of our envelopment of his left flank, the terrain does not force the enemy to fight on ground more favorable to the attacker, but rather presents a strong position across the path of our attack. In an envelopment of his right flank, the ground is favorable to the use of combined arms, but the space available for our maneuver precludes taking full advantage of an envelopment since any attack of ours receives fire from the Red main position before we strike the objective and because we are restricted by the river. In both of these envelopments, Red is afforded more time to get set for the attack. We forego the opportunity to keep him off balance.

(2) Draft, Field Manual 100-5, states in paragraph 9.13, "A successful envelopment depends largely on the degree of surprise attained and on the ability of the secondary attack to contain the bulk of the enemy's forces." In this situation, we are not disposed to contain the bulk of his forces, and any time we adopt an envelopment the degree of surprise is questionable. Hence, due to Red's capability of blocking, the chances of destroying Red are not very great except through speed and vigor of execution. Further, we may drive him back on his lines of communications.

(3) Draft, Field Manual 100-5, states in paragraph 9.18, "When the situation does not favor an envelopment, the main attack is directed to penetrate the hostile front. Conditions which demand a penetration are enemy flanks which are unassailable or *lack of time* to make an en-

veloping maneuver. Conditions which *favor* a penetration are overextension of the enemy, or terrain, and observation favorable for more effective cooperation of the combined arms. Such an attack often can be organized more quickly than an envelopment." However, *time* is a major consideration by the Commanding General, 1st Inf Div, in his decision to insure further the successful accomplishment of his mission. The sooner he can improve his position, the more secure he will be against the most adverse capability of the enemy—namely, his reinforcement in strength with troops from around JERSEY SHORE. Neither should it be overlooked that in the unknowns of combat there may be other Red forces in the area which can be used as reinforcements. In this situation, the enemy's flanks are *not* unassailable. Furthermore, Red is now overextended with four battalions on a front of 16,000 yards. Also, the axis of our penetration coincides with high ground which is the best entrance into his position. Red has not had time to organize strongly his present position.

(4) Due to Red's lack of depth, a rupture in his present position may produce open interior flanks and a penetration affords us a better chance of destroying the bulk of his forces.

12. A solution to the Fourth Requirement.—See Map 3.

13. A Discussion of the Fourth Requirement.—*a.* The distribution of troops and the scheme of maneuver for a penetration should provide for the following:

(1) The rupture of the position.

(2) The rolling back of the shoulders of the rupture.

(3) The exploitation phase. We feel that these three impulses are provided for by giving the 3d Inf Regt the first two of these and the third one to the 2d Inf Regt. Such a plan takes care of the least favorable battle conditions and provides for the capturing of our objective. There are times, when, due to enemy weakness, gaps in his defense, or lack of reserves these impulses are carried through in one sweep by the initial attacking force. In this situation, should such conditions prevail, then CG 1st Inf Div would be very happy, indeed, to let the 3d Inf Regt slide down into the objective. However, the point must be remembered that our plan has given the CG 1st Inf Div the maximum flexibility.

b. This flexibility is provided by these factors:

(1) Under the best possible conditions, the 3d Inf may do the job itself.

(2) The 2d Inf is set up to be the exploiting force, but

(3) If the 3d Regt bogs down the 2d Inf can go to Obj 1, thereby allowing the CG 1st Inf Div to reconstitute a reserve from the 3d Inf and send it down to Obj 2.

c. Not to be overlooked is the mission of the 1st Inf Regt. Its attack will contain enemy troops, thereby reducing his ability to shift and block our attack. It is not expected that the 1st Inf Regt will march up to its objective, since it was stopped this morning. However, with our scheme of attack, it is believed that the regiment will get moving when Red is forced to fight our main attack force in rear of his present front line. The desire of the CG 1st Inf Div that the 1st Inf Regt stay out of ELIZABETHTOWN is a valid one and does not tell the CO 1st Inf Regt how to fight his battle. Town fighting is slow and difficult.

d. Our reserve is in position behind the main effort.

e. Attachments provide the necessary tools with which to do the job.

f. Points regarding the artillery missions.

(1) 2d FA Bn in G/S. Remember that forward observers of this battalion will have to work with 2d Inf Regt when it is committed so they must not be engaged with another unit.

(2) 601st FA Gp in G/S, because 1st Inf Div has to provide its own counterbattery work and 8-in How and 155-mm Gun are the best weapons for this work which are present in the 1st Inf Div.

(3) Antiaircraft artillery — normal missions and 1st Inf Div has present two battalions of AAA.

g. Armd Cav Regt (L)—normal missions and within its capabilities.

14. This problem was designed to give the student a freedom of action, for in reality, the CG 1st Inf Div has a *what* to answer—shall he attack or shall he defend because the bridge at COLUMBIA is already about 20,000 yards distant from enemy artillery.

In view of Red's reinforcement capabilities, the capabilities of the 1st Inf Div, and time and space factors, it is questionable whether the CG 1st Inf Div is justified in seizing the high ground northeast of MIDDLETOWN. The three major points which influenced the CG 1st Inf Div in choosing his course of action were time, terrain, and enemy dispositions. On an actual map, the last named factor indicates Red to be disposed on a front of 16,000 yards with 4 infantry battalions.

Soldiers want to be able to recognize in their leader some quality which they themselves do not possess; that quality is "decision." The leader's power of decision results from his ability to remain imperturbable in the crisis. The leader's greatest asset is the ability to act normally in abnormal conditions, to continue to think rationally when his men have ceased to think, to be decisive in action when they are paralyzed with fear. There are many important qualities which a leader should possess, but they can never be a substitute for decision in action and calmness in crisis.

Field Marshal Montgomery

I often wonder how we can expect our leaders who have perhaps never commanded more than battalions or regiments for any length of time, to suddenly be able to command corps and armies and groups of armies. I think we take too much for granted. They have achieved it remarkably well. That we have fought two major wars, against two of perhaps the strongest military powers in the world, with a million casualties, is a tribute to the superb leadership of the American Army.

Lieutenant General Raymond S. McLain

JAPAN'S SUCCESSFUL OCCUPATION OF CHINA

Riley Sunderland and Jacqueline Perry

WITH the end of World War II and the opening of many Japanese records to the industrious toil of the United States Strategic Bombing Survey, it is now possible to form a much more accurate estimate of the impact of the war in China on the Japanese Army and the Japanese war economy than was previously possible.

Beginning in 1929, Japanese policy forbade the publication of statistics on most industries so that potential antagonists were thus left free to reach estimates very different from what in retrospect appears to have been more nearly the truth. The Surveys present a valuable tabulation of information drawn from the interrogation of Japanese officials and Japanese ministerial records, from which several conclusions may be drawn.

It would appear that the Japanese Army in China was very nearly self-sufficient, and that Japanese divisions entered and left that country as Imperial policy might elect, subject only to the sovereign and eventually throttling influence of the shipping shortage. It would also seem that one year of war in the Southwest Pacific was a greater drain upon the Japanese Army stores than four and one-half years of war in China, and that the Japanese economy in great measure depended upon the stores of raw materials extracted from occupied China.

It is not easy to find debit items on the Japanese ledger than can be traced directly to the China Incident. Japanese merchant vessel sinkings by China-based aircraft have been greatly exaggerated, on the order of 600 percent if only those claimed as "certain" are considered, by 1,000 percent if the "probables" are thrown in. Strategic bombardment by China-based aircraft accounted for a loss of about 500,000 tons of finished steel. Perhaps the major items to the credit of China-based air power is the drastic slashing by 92 percent of the Yangtze iron ore traffic between 1943 and 1944 which ultimately had great effect on Japanese pig iron production. The principal debit items of the China Incident are undoubtedly to be found in the diplomatic field and are therefore not capable of precise measurement.

Favorable Trade Balance

Instead of being pushed to the brink of bankruptcy by her military adventures in China, Japan had a favorable balance of trade from 1938 to 1940. Her total foreign trade reached an enviable all-time high in 1940. Of course, there was a change in the character of Japan's overseas trade as non-essential foods and luxury items were replaced by increased importation of machinery, motor vehicles, bearings, ores and metals, and petroleum.

Imports of raw materials from China were partially responsible for the rise in

national production in the 1930's of 5 percent a year which made increased export trade together with war production possible. In 1940, 23 percent of Japanese iron ore, 54 percent of Japanese coking coal, and 39 percent of Japanese salt came from occupied China. Undoubtedly, rigid import-export controls imposed by a war economy further helped to secure a surplus of exports over imports. At this time, there was a remarkably rapid shift from light to heavy industry in Japan. In 1930, heavy industry composed one-third of the total industry, and by 1942 it had increased to two-thirds of the total.

Troop Dispositions

Japan attained her major goals in China—that is, occupation of those areas whose raw material resources meshed with her economy—by the use of some 23 divisions and 20 independent mixed brigades. The outbreak of the war in 1939 suggested that the Divine Wind was blowing good fortune Nippon-wards, and it was necessary to have the mobile field forces to take advantage of this.

Japan, therefore, sent newly organized garrison divisions with little mobility and newly activated independent mixed brigades to China to secure the area for a long period. The mobile divisions that had been in China previously were then free to leave at will.

To occupy the Philippines, Malaya, and Burma, Japan used a total of 10 divisions and 3 regimental combat teams. Of these, 6 came from China and had been blooded there. During the years December 1941—August 1945, 13 divisions were withdrawn from China, while only 1 was sent from Japan to China, and about 15 were activated and trained in China, the filler personnel, of course, coming from the homeland. In this period, 50,000 troops were sent as replacements, which strongly suggests a corresponding casualty figure for maintenance of the standard strength of about 23 divisions.

It is notable that there were no troop transfers to or from China in 1945 due partially to the acute shipping shortage, tonnage having fallen from 5,000,000 to 1,000,000 tons between 1941 and 1945. The prewar expenditure for the Japanese Army in China in 1940 was 712 million yen for an army of 925 thousand men, as against 2,988 million yen for an army of 415 thousand men in the homeland. It may be assumed that this expenditure was largely printing-press yen, whose burden fell on the Chinese economy.

Japanese records that have come to light since World War II indicate that Japan was not "bled white" by the China Incident, and that her army was not bogged down in China, as had been believed previously

Japanese Army expenditures in China continued at an even and low figure until 1944 when serious and large-scale operations were attempted, as against the rice-raids and training expeditions of earlier years. For their drive down the Chinese railroads in 1944, Japanese Army expenditures increased 700 percent over 1943, a clear indication that they had been coasting previously.

Military Stores

The nature and quantity of stores shipped from Japan to the various Asiatic and Pacific fronts offers an interesting commentary on the intensity and nature of operations in each. It is notable that no provisions were shipped from Japan to occupied China; the army there lived off the country. The Japanese supply sys-

tem for China made each army responsible for obtaining food from its own area. The forces in New Guinea, for example, were not so fortunate; from beginning to end, 972,000 tons of foodstuffs were shipped there.

The figures on total tonnages supplied to combat areas are interesting. For the years 1941-1945, the Japanese Army shipped 535,000 tons to its forces in China. In 1943, it shipped 2,100,000 tons to New Guinea alone, plus 2,200,000 to the Solomons, and 190,000 to the front in Burma. On the other hand, the fact that China served as an arsenal is apparent from the fact that 30 percent of military supplies for combat areas came from China in 1941.

The Japanese investment in air power in China was of the most modest nature. In the summer of 1944, Japanese air strength in China amounted to only about 160 planes, although Japanese aircraft production had reached its highest level of 1,786 planes a month at that time.

To facilitate the exploitation of China's raw materials, Japan increased and improved the transportation routes of North China where most of the coal and iron ore mines were located. It is notable that under Japanese management traffic on the North China railroads increased 50 percent from 1938 to 1942. After constructing over 400 miles of railroads in 1940, the Japanese added about 130 miles more of new track in 1942 and 1943. Then in 1944, they doubletracked the existing road from Peiping to Tientsin to Shanhaikuan, a distance of some 335 miles.

The conclusion that Japan was not being bled white by the China Incident, and that the divisions which overran Southeast Asia in 1941-1942 were not bogged down in China, seems inescapable.

The Second World War proved that modern wars are fought on the industrial production lines as much as they are in the theaters of combat action. Even the largest aviation research and development program is of little value to national security unless it is supported by an aircraft industry capable of meeting the tremendous demands for air weapons that active hostilities rapidly impose. The attack on Pearl Harbor in 1941 thrust the United States into conflict with powerful nations equipped to wage total war at a time when there existed only the skeleton of an American defense industry. We were able to achieve victory under these circumstances only because of the time and distance that separated us from our enemies.

General Carl Spaatz

THE DEPARTMENT OF LOGISTICS

Lieutenant Colonel Millard G. Gray, *Infantry*
Instructor, Command and General Staff College

LOGISTICS is a recent addition to the vocabulary of many military personnel. Before World War II, you heard about "Supply and Evacuation"—it was that part of warfare which was incidental to the main job of fighting. Everyone knew that troops had to eat and that shooting required ammunition. Somewhere in the background were some unromantic figures who met these needs and did the other jobs of providing horses and hay, bridges and boats, signal wire and serums. It all seemed pretty simple, with no reason to make a fuss about such elementary things.

Even the logistical tasks of World War I failed to impress many soldiers. Moving many men and some supplies across the Atlantic was admittedly a big job. But we could count on our Allies for aeroplanes and artillery; if we needed a big gun, we took it off a naval vessel. There was a bad mess back of Brest, but you had to expect this in warfare.

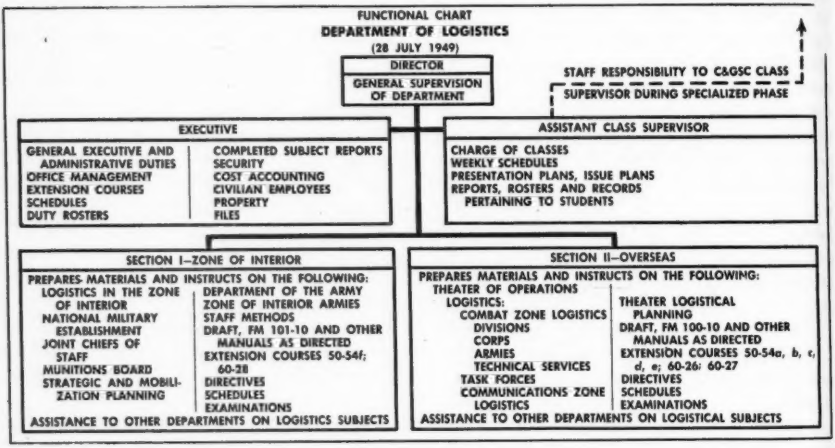
Not everyone, however, agreed with the idea that warfare had to be unlimited confusion. Some men said that the science of management could be applied with success. They believed that planning beforehand would lead to smooth execution. They argued that detailed, minute knowledge; anticipation of each problem; and expecting the unexpected was the key to effective support of victorious troops.

Modern war cannot be fought without this precise planning. Thus, logistics (the science of supply, evacuation and hospitalization, transportation, service, and management) rose in World War II to a position of great importance in the conduct of operations. Commanders recognized that strategy, as well as tactics, stemmed from the logistical situation. General Dwight D. Eisenhower had this to say in his report as Supreme Commander:

"The importance of the steady supply of our forces, once landed, may be gaged by reference to German strategy. This was intended to insure that our supplies should never be permitted to begin flowing into the beachheads. The German philosophy was: 'Deny the Allies the use of ports and they will be unable to support their armies ashore.' For this reason, the chain of Atlantic and Channel ports from Bordeaux to Antwerp was under orders from Hitler himself to fight to the last man and the last round of ammunition. The Germans fully expected us to be able to make a landing at some point on the Channel coast, but they were nevertheless certain that they could dislodge us before supplies could be brought ashore to

In the Department of Logistics, Command and General Staff College, students get the specialized instruction in logistics which events have proved so necessary to the strategy and tactics of modern war

maintain the troops. They had no knowledge of our artificial harbors, a secret as closely guarded as the time and place of our assault. The impossible was accomplished and supplies came ashore, not afterwards to support a force beleaguered on the beachheads, but actually with the troops as they landed. The Germans were, by virtue of our initial supply, denied the opportunity of dislodging us and were subsequently, throughout the campaign, under sustained attack as the result of the



feats of maintenance performed by our administrative organizations."

When the postwar reorganization of the Command and General Staff College took place in 1946, a School of Logistics was one of the four Schools established. In the reorganization 2 years later, the School of Logistics became the Department of Logistics. To see the relation of logistics to the total work of the College, one must remember the mission of the C&GSC:

To provide instruction based on war lessons and modern developments to insure—

1. Research and study to improve methods of personnel, intelligence, tactical, and logistical procedures.

2. Efficient personnel, intelligence, and logistical procedures.

3. Effective development and employment of all field forces within the framework of the army group.

4. Coordinated employment of army units with air and naval forces.

Under this mission of the College, the Department of Logistics is charged with staff supervision and coordination of Command and General Staff College logistical instruction, and with the preparation and presentation of advanced logistical instruction. The Department has these responsibilities:

a. Coordination of resident and nonresident instruction in command and general staff matters relating to:

(1) The organization and functions (except combat functions) of the technical services and service units.

(2) The staff organization, staff duties, and techniques in logistical planning and operations of the major commands and of the arms and services.

b. Conduct of instruction in logistics at Army Group, Theater Army, Theater,

Zone of Interior Army, and Department of the Army levels, for students assigned to the specialized logistics courses.

c. Preparation or review of logistical texts, reference material, and extension courses pertinent to the College mission.

These, then, are the broad missions of the Department of Logistics. Many details go into their execution; their accomplishment can be seen in the operation of some of the College courses.

The Regular Course.—The purpose of the Regular Course is to prepare officers for duty as commanders and general staff officers of divisions, corps, and army, and comparable levels in the Communications Zone. It also trains for duty in a specific general staff section at Theater, Zone of Interior, and Department of Army General Staff levels.

Approximately three-fourths of the Regular Course is devoted to common instruction for all students. About one-fourth of the 10-month period covers specialized instruction where a student, assigned by the Department of the Army, follows one of four paths: Personnel, Intelligence, Operations and Training, or Logistics.

Logistical instruction is present in much of the work in the common phase. The student learns the elements of the function and operation of the logistics officer; he sees the execution of these principles in Combat Zone and Communications Zone activities. Then, after a general introduction which views Department of the Army General Staff operation, he is plunged into the specialized phase.

The student in the specialized phase of the Department of Logistics learns about top-level planning and procedures for insuring logistical support of operations, including strategic and mobilization planning of the highest levels. He takes part in problems dealing with raising an army at home, its training, its movement overseas, and its support in foreign operations. This brings him in contact with operations of the Joint Chiefs of Staff, and Department of the Army and Theater staffs. In this, he works with Navy, Marine, and Air Force officers.

With a background of specialized instruction, the student then goes through the steps involved in planning and carrying out an amphibious, airborne operation. He starts with the Joint Chiefs of Staff and carries the operation through each headquarters, including the Army element of the joint task force.

The Associate Course.—Since the Associate Course is only about one-quarter the length of the Regular Course, material must be condensed and given in less detail. In attempting to meet the mission of the College in a broad sense, a chief objective is to give the student enough basic knowledge to permit him to pursue his studies further and more effectively after he has had this work. Common instruction is limited to the division level. Specialized logistics instruction starts with problems confronting the Corps rather than at Theater and Department of the Army levels, as in the Regular Course.

Organization

To meet these missions, the Department of Logistics maintains a flexible organization. Its present organization is shown in the accompanying chart. The personnel who perform the functions indicated in the chart are drawn from all branches and services.

Secondly, officers assigned to one of the major sections also perform instruction or prepare material for the other section.

Logistics does not operate in separate niches. All of its operations are interrelated. The chain of logistical procedure links raw material to the ultimate consumer; it puts the finished product in his hand. The Department of Logistics aims to provide smiths who can forge stronger links in that chain.

LIAISON WITHIN AN ALLIED FORCE

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IN 1945, the world looked with new hope upon the prospect of an enduring peace. More than 50 nations of the world pledged themselves to abide by the charter of the United Nations and to support its principles and efforts to maintain peace. These nations agreed to pool their war-making resources and to prosecute jointly any military campaigns that might be required in order to preserve world peace.

These agreements made available to the United Nations vast amounts of war-making potential. To date, however, the signatory nations have not agreed on all of the principles and techniques that are necessary to overcome the obstacles that have existed since time immemorial to success in a war of coalition. This article is designed to stimulate thought regarding the solution of problems which may arise in securing teamwork within an allied force comprised of troops provided by several different nations.

Historical Background

During the last stages of the Napoleonic Wars (1814), Russia, Austria, Prussia, and Great Britain concluded the alliance of Chaumont by which each nation pledged itself to keep 100,000 men in the field until Napoleon was overthrown. There was no organization similar to the Combined Chiefs of Staff to plan, direct, and control the combined efforts of the available troops.

The heads of state of the several nations traveled with the armies, and they held countless councils of war both on a state level and on a military level. The Austrian general, Schwarzenberg, representing the power with the largest force, attempted to exercise limited operational control over the armies of the several nations. He was checked at every turn, however, by the heads of state of the nations providing the forces, all of whom had different political objectives. Because of the loose arrangements of the opposing alliance, Napoleon was able to defeat the vastly superior forces which opposed him by massing his inferior means for decisive local actions. Thus, because of lack of effective political and military organization, united action against Napoleon was not accomplished. The result was that Napoleon, with inferior forces, was able to delay his defeat for almost 10 years.

The Central Powers in World War I

The following quotations are from *Ludendorff's Own Story* by Enrich Von Ludendorff, Quartermaster General of the German Army.

"When the Field Marshal (Hindenburg) and I arrived at Pless, the question was just being mooted of the establishment of a single command for the Quadruple Alliance in all tactical and strategical matters. I warmly advocated it and had the pleasure of seeing it carried out. The final decision

lay with His Majesty, who gave permission to the Field Marshal to do everything 'By Order of His Majesty.' In practice, the actual control was limited; we had no definite knowledge of the quality of our allies' troops, and were thus unable, for example, to direct that only so many troops should be retained on Austria's Italian frontier. In practice, we generally came to some mutual arrangement, but the directions issued by the German General Headquarters carried with them a certain authority which proved to be of great utility."

* * * * *

"One result of the establishment of the single command was that the general staffs of the various allies had recourse to us whenever disagreement broke out between them. In Balkan questions, the Bulgar General Headquarters was very reluctant to have any direct dealing with Turkey or Austria-Hungary, while the latter, in its turn, preferred to deal with us rather than with Bulgaria."

* * * * *

"In the autumn of 1916, the idea was mooted of establishing a central supply office for the Quadruple Alliance, under German control. It was a specious suggestion, but supply in the four countries really depended upon wholly different considerations and could never have been managed on the same principles. In the end, they would all have lived on Germany. The idea was quite rightly abandoned."

* * * * *

"General von Below had (at the end of 1917) also taken charge of the Bulgarian Army, but we were unacquainted with their language and their national sentiment. It was very difficult for us to make much progress in the face of Bulgarian mistrust of German tutelage. Nevertheless, the spirit of the Bulgarian Army began to improve, although the Bulgarian General Headquarters itself did nothing actively to assist in the training."

The Allies in World War I

During World War I, the four nations known as the Central Powers, were opposed by an Allied coalition of 22 states. These Allies had manpower and resources enormously superior to those of the Central Powers. However, because of jealousies, distrusts, double dealing, divergent political objectives, and lack of unified and coordinated allied efforts on the part of the Allies, the Central Powers decisively won the war on the Eastern Front, and came very close to achieving victory in the West.

History offers many examples of the failure of allied commands, but better coordination was achieved by the Allies in WW II than ever before, and a basis for unified action now exists in the UN charter

Complete Allied agreement on war aims was never achieved. The Allied war effort lacked over-all direction and coordination. For the period from 1914 to 1917, there was no over-all Allied strategic plan. Unity of Allied command was achieved only in the final stage of the war, and then it was effective on only one of the four Allied fronts.

Marshal Foch, the Allied Commander of the Western Front, writes as follows regarding the German offensive of 21 March 1918, which threatened to separate the British and French Armies:

"The moment a violent and sustained crisis suddenly broke, each of the two commanders in chief found himself faced by the responsibility he owed to his own country, and precisely what was to be feared,

happened. Each was concerned most of all with preserving and maintaining his army; he therefore oriented it toward its bases, the direction best calculated to protect his own nation's interests. For the British, this direction was the Channel Ports; for the French, it was Paris and the interior of France; to each, this appeared as the essential task."

The first step toward unity of allied command was the assembly of the Supreme War Council of the Allies. The second step was the Doullens Agreement which stated:

"General Foch is charged by the British and French governments with coordinating the action of the Allied armies on the Western Front. To this end, he will come to an understanding with the commanders in chief who are requested to furnish him with all necessary information."

Although the Doullens Agreement was a progressive step toward accomplishing effective Allied coordination, it was deficient in three respects: 1. It applied only to France and the British Empire. 2. It did not include the United States or the Belgian Armies. 3. Marshal Foch was given only the authority to advise or recommend on the basis of information voluntarily given him.

The Doullens Agreement was supplanted by the Beauvais Agreement of 3 April 1918, to which the French, British, and United States governments subscribed. The Beauvais Agreement was as follows:

"General Foch is charged by the British, French, and American governments with coordination of the action of the Allied armies on the Western Front. To this end, all powers necessary to secure effective realization are conferred on him. The British, French, and American governments, for this purpose, entrust to General Foch the strategic direction of military operations. The commanders in chief of the British, French and American armies have full control of the tactical employment of their forces. Each commander in chief will have the right of appeal to his government, if, in his opinion, the safety of his army is compromised by any order received from General Foch."

This resolution did not confer complete command on Marshal Foch but only "strategic direction of military operations." He was given the power to issue orders to each of three commanders in chief. The orders would be executed if concurred in by the commander in chief concerned. There might be delay if the commander in chief did not agree and appealed through his government. Each government retained ultimate authority over its own troops.

The Axis in World War II

During World War II, the Axis Powers did not pursue an allied over-all strategic plan. Instead, each major nation pursued its own political objectives—Germany in Europe proper, Italy in the Mediterranean area, and Japan in Asia.

Examples to show the methods which the Axis nations used to achieve coordinated action are given below:

On 5 March 1941, Hitler issued a directive designed to induce Japan to take military action in the Far East through offers of assistance and willingness to recognize Japanese territorial gains. Hitler's thought was that Japanese entrance into the war would commit all United States resources in the Pacific. In this way, he felt that the German Army would be able to conquer Great Britain at an early date, since Great Britain's last hope for reinforcement would be gone.

Hitler reserved to himself the duties of planning and coordinating the direction of campaigns regarding objectives for the Italian and Hungarian forces.

Hitler stated: ". . . I shall convey all military demands concerning coordinated execution of operations to the *Duce* and to Regent Horthy in the form of proposals and requests. . . . A headquarters for

the German general attached to High Command of the Hungarian Armed Forces is to be established in Hungary to handle my military correspondence with Regent Horthy."

On 2 December 1941, Field Marshal Kesselring was appointed Commanding General, Armed Forces South. He was placed under the command of Mussolini and received his instruction through the Italian High Command. The German Navy in the Mediterranean was excluded from Kesselring's command. Instead, he was ordered ". . . to direct all requests aimed at coordinating the combined operation of the Axis naval forces to the German admiral attached to the Italian Naval High Command."

The military efforts contributed by Germany and Italy were not coordinated, as illustrated by the following facts:

Hitler and Mussolini, accompanied by their respective military and diplomatic advisers, met from time to time during the war and reached certain decisions. But no common plan or common agreement on strategy and distribution of resources was ever achieved. There was nothing even remotely corresponding to the Combined Chiefs of Staff.

Germany opened the war by attacking Poland in 1939 without consulting Italy. The Italian government had stated that it would not be prepared for war until 1943.

Germany did not request Italy's participation in the war in 1940, but Mussolini brought about Italy's declaration of war, believing that the conflict was almost over and that he could thus gain the spoils of the Mediterranean which would accrue as the result of German victories.

Italy declared war on Greece without any notification to the German government. The Germans did not wish it and had cautioned against it. This action involved the Germans in the Balkans when they did not wish such an extension of their lines of communications.

Germany declared war on Russia without any previous notification to the Italian government.

Because of Germany's preponderance of resources and power, the Axis war was fought in accordance with Hitler's strategic conceptions. On the expectation of German victory, Italian troops were sent into various theaters as auxiliaries to the Germans.

Germany did not request Italian participation in the war on the Eastern Front. Mussolini insisted in 1941, in spite of German suggestions that the supply problem would create difficulties, on sending a corps, which he enlarged in 1942 to an army of 10 divisions.

Examples of friction in the German-Italian exercise of combined operations are shown below.

After El Alamein and the Allied landings in North Africa, Mussolini urged: 1. Concluding a peace with Russia or else withdrawing to a shorter defensive position in the east. 2. Concentration of Axis power in the Mediterranean. 3. Axis seizure of Gibraltar. Hitler refused to accept any of these proposals.

The Germans abandoned the Italians at El Alamein, after appropriating the Italian means of transportation. Rommel was finally recalled from North Africa at the request of Mussolini.

The Italian "Gariboldi" Army was cut to pieces in Russia while serving in a German Army Group. The Italians claimed that the Germans often appropriated Italian motor vehicles without Italian permission. The Germans blamed the Italians for the Russian successes.

One Italian general writes ". . . The Italian Army in Russia was incorporated into a German Army Group, but this time the German high command did not leave

to the Italian commander the freedom of action which is normal in any army for a large unit of such importance. In fact, the German command imposed the insertion of German units among Italian units and also imposed tactical procedures which the Italian command advised against. . . . During the retreat (from Stalingrad), the Italian troops were able to verify, even more than in Greece, the lack of comradeship by the Germans. Many of our columns, brought back on foot across the snow, were left to themselves by German motorized columns even though, as a result of the amalgamation imposed by the German command, they formed part of the same corps. Numerous German elements took possession, even with violence, of auto transport assembled at the rear of our troops."

There was a consistent divergence in Italian and German views regarding the Yugoslav guerrillas. The Italians desired a policy of moderation toward the *Chetniks*, whereas the Germans demanded ruthlessness toward the *Chetniks* and Partisans.

When the Axis reverses in North Africa left Italy exposed as a battlefield on an outer rampart of a German "fortress," the Italian high command overthrew Mussolini.

The Allies in World War II

General Eisenhower has stated that "Allied effectiveness in World War II established for all time the feasibility of developing and employing joint control machinery that can meet the sternest tests of war. The key to the matter is a readiness, on highest levels, to adjust all nationalistic differences that affect the strategic employment of combined resources, and, in the war theater, to designate a single commander who is supported to the limit. With these two things done, success rests in the vision, the leadership, the skill, and the judgment of the professionals making up command and staff groups; if these two things are not done, only failure can result." *

During World War II, the armies of Great Britain and the United States accomplished better coordination than had ever been accomplished by allied armies in previous history. Even so, maximum Allied effectiveness was not achieved. There was no over-all unity of command embracing all fronts on which armies of the Allies opposed those of the Axis Powers. The war on the Eastern Front was only coordinated with the Allied military efforts in the Mediterranean and European theaters, despite several meetings of the heads of the Allied states, by the unsatisfactory methods of diplomacy. Operational plans prepared by the Combined Chiefs of Staff referred to the military undertakings of the USSR as basic assumptions.

The war efforts of Great Britain and the United States were closely integrated by means of the Combined Chiefs of Staff. Acting on the basis of powers delegated to the Combined Chiefs of Staff by the politically responsible heads of states, this combined staff defined the fundamental military objectives of the war and determined the allocation of the combined resources required for achieving their objectives by means of a series of carefully written decisions on which agreement had been reached. The basic strategy of the war in general and in the several theaters was determined by the Combined Chiefs of Staff and defined by means of directives.

Unity of command over the troops of the two governments was granted by the Combined Chiefs of Staff to certain commanders in chief within certain clearly defined theaters. The suggestion was at one time made that there be a supreme Allied commander over both the Mediter-

* *Crusade in Europe* by General Dwight D. Eisenhower.

ranean and European theaters, but no such command was ever instituted.

The first unified command was by action of the Combined Chiefs of Staff, which informed General Eisenhower by the directive of 14 August 1942 that:

"The President and the Prime Minister have agreed that combined military operations be directed against Africa. . . .

"You are appointed Commander in Chief, Allied Expeditionary Force, to undertake the above mentioned operation.

"You are responsible to the Combined Chiefs of Staff and you will receive from that body all directives for the operation. Whenever feasible and appropriate, matters pertaining to and affecting the operation with which you are charged will be referred to you for advance consideration and recommendations prior to formal promulgation.

"In the interests of speeding preparation of plans, you are authorized to communicate directly with the United States Chiefs of Staff or the British Chiefs of Staff."

It was understood from the beginning that the Commander in Chief would have supreme command over the naval and air forces as well as ground forces in the theater of operations. This was given written expression in the memorandum of 13 October 1942.

"The Commander in Chief, Allied Force, will command all forces assigned to Operation *Torch*, under the principle of unity of command."

The right of a subordinate commander of different nationality was much more restricted than it had been under Marshal Foch in 1918. The Commanding General of the British First Army was placed under General Eisenhower's command. The original proposal of the British Joint Chiefs of Staff stipulated that the First Army was to be "under the Supreme Command of the Allied Commander in Chief," but:

". . . At the same time, if any order given by him (the Allied Commander in Chief) appears to you (General Anderson) to imperil any British troops in the Allied Force, even though they may not be under your direct command, it is agreed between the British and United States governments that you will be at liberty to appeal to the War Office before the order is executed."

This proposal of 7 October 1942 was modified on 21 October as follows:

"His Majesty's government and the government of the United States have agreed that singleness of purpose and unified direction are essential to the speedy success of these operations. To this end, the First Army (British) has been placed under the Supreme Command of the Allied Commander in Chief, Lieutenant General Dwight D. Eisenhower, United States Army. In the exercise of his command, the national forces at his disposal will be employed towards the benefit of the United Nations and in pursuit of the common objective. You will carry out any order issued by him.

"In the unlikely event of your receiving an order which, in your view, will give rise to a grave and exceptional situation, you have the right to appeal to the War Office, provided that by so doing an opportunity is not lost, or any part of the Allied force endangered. You will, however, first inform the Allied Commander in Chief that you intend so to appeal, and you will give him your reason."

The success of Allied action in World War II was due to several factors, some of which were:

Over-all strategy and the distribution of combined resources was determined by the Combined Chiefs of Staff.

Each basic strategic plan for each theater was submitted to, discussed, approved, and issued by the Combined Chiefs of Staff.

For each major strategic operation, the Commander in Chief was assured the req-

uisite resources by the Combined Chiefs of Staff.

Unified command was restricted to specified and clearly defined theaters.

The common use of the English language enormously facilitated this Anglo-American cooperation.

Allied action in World War II could perhaps have been improved by (1) centralized control of all the armed forces involved in the war against the Axis nations, (2) effective contributions from all the nations which opposed the Axis, and (3) international agreement on all political objectives to be accomplished.

Principles of Allied Command

These historical facts suggest the following principles for the exercise of command of allied armies:

The heads of states must agree on the political objectives to be accomplished by the combined military effort.

The heads of states must agree on procedures for applying the combined military force provided by the states.

A council of government representatives must be appointed to render for the several governments decisions requiring state authority regarding the control of armies.

A council of military persons must be formed to exercise, under state supervision, strategic control of the combined military forces.

A regional commander in chief for the Allied Powers must be appointed and supported by the heads of state to execute military directives.

The allied commander in chief should not exercise administrative or disciplinary control over allied troops.

The allied commander in chief should exercise operational control over the operational supply reserves provided by the several nations to support planned operations.

Measures must be taken to insure that the several chiefs of state retain their sovereignty. Military commanders must appear in the eyes of their people and their military personnel as sovereign military leaders.

Measures should be taken to insure that the headquarters of the supreme commander of the regional allied force appears in the eyes of the people and the troops of the several nations as a combined agency in which all contributory nations participate.

Long-range combined planning by military and state personnel is essential to successful combined military effort.

Command Obstacles

Although the United Nations charter provides the legal framework for the exercise of combined command, it does not solve the many problems which emerge when forces of different nationalities are grouped together for a common effort. Important problems of language, law, custom, psychology, culture, and standards of living are sure to arise. Military problems of training, armament, supply, discipline, administration, technique, and tactical doctrine have always plagued those who are responsible for the conduct of combined command. Some nations have not yet decided the position which their Army, Navy, and Air Force will occupy in the structure of their national military establishment.

Nations and individuals may sometimes compete for positions in the favor of the supreme commander. Jealousies may develop which will destroy the effectiveness of the allied team. Each nation's forces desire to occupy an important and responsible position in the family of forces, yet reserve forces from some source must be maintained. All contributing nations will watch the supreme commander critically to be sure that he does not favor the forces and commanders provided by his own nation with power and opportunity.

The supreme commander will be held responsible for the accomplishments of

the allied team. If he risks troops in actions which they are not trained to perform, the court of world opinion will hold him accountable. At the same time, this supreme commander may evoke the deepest possible resentment in the hearts of allied people by attempting to order foreign troops to train according to the standards accepted in the commander's armed forces. Operational necessity may dictate that troops from a particular nation capture an objective for which the cost in lives will be excessively heavy. The supreme commander must be ever conscious of the fact that excessive losses, and other similar reverses, may cause him to lose the confidence of the people who support a nation which provides him forces. Tactical requirements may sometimes force a supreme commander to transfer logistic support provided for the troops of one nation to the support of troops from another nation, with the consequent risk of incurring resentment, embarrassing national financial conditions, and international ill will. Adjacent units may develop distrust for each other, fail to cooperate, and offer the enemy an opportunity to separate them by counteroffensive. The enemy will welcome an opportunity to separate allied nations by instigating inter-allied feuds and hatreds.

Command Responsibilities

The supreme commander must prevent friction between his forces while engendering the mutual confidence, respect, and the will to cooperate that are essential to the success of an allied effort. Some device must be employed to guarantee that the commander's instructions are transmitted promptly, accurately, and in the language of the recipient of the order. Moreover, these instructions must be delivered by persons who understand the military implications of the instruction and who can respond with enthusiasm and complete understanding when questioned by local commanders about the strategic and tactical implications. In addition, measures must be adopted to insure that subordinate commanders of all nations will understand the over-all mission of the allied team so that administrative problems are considered in their proper place. Finally, the supreme commander must be kept accurately informed regarding operational needs, local reverses, and local accomplishments to achieve the best results. Each national force must remain autonomous under its commander, even when employed under the operational control of another ally.

Staff Liaison

The staff of the supreme commander must, if all nations are to participate, be a combined group assembled from the several contributing nations. The individuals who comprise this staff must be loyal to the supreme commander and must devote their efforts toward prospering the combined team as a whole. This body must include persons from the several contributing nations, as well as persons from the three services of all nations. Thus, this staff could easily result in an assemblage of representatives which would be diplomatically proper, but which would not be able to function effectively. Like any other commander, the supreme commander must have the assistance of an efficient, balanced, and harmonious staff. Cooperation, respect, and team play is essential for members of this staff. This staff should be regarded by subordinate staffs and commanders with respect and admiration.

The supreme commander of the forces from each nation will expect to develop a staff which is capable of transmitting orders and information rapidly and accurately up, down, and laterally. This task will require these commanders to maintain qualified representatives in the several large headquarters throughout a theater where combined efforts are to be

made. If the commander of each nation's force is to insure that his forces will enjoy the respect, confidence, and comradeship of the other forces, liaison personnel must function well.

In order to mass the combined military means so as to accomplish decisive results, the supreme commander must have unbiased and uncolored advice concerning the potential which is available. He must obtain this advice from technically qualified persons provided by the several nations, because he would destroy the effectiveness of his combined endeavors if he relied too much on advice from his own countrymen. Moreover, having received advice, and having decided to mass the military effort, then the supreme commander must find a method of applying this effort promptly without violating any nation's sovereignty of command or endangering unduly the nation's forces.

The supreme commander must have a liaison staff that can mingle freely, effectively, and intelligently with all the persons who are essential to the production and preservation of a workable combined team. This staff must increasingly challenge the several nations to work enthusiastically and resourcefully together during both the planning and the execution phases of operations, by placing their responsibilities to the combined team ahead of their responsibilities to themselves.

Summary

History provides examples to prove that nations, even though allied, do not accomplish all of the aims of which they are capable through military action unless their armed forces receive unified political, economic, and strategic guidance. The legal basis for this unified guidance exists in the United Nations charter, but it must yet be made to operate by the practical contributions of able and unselfish military persons. The world looks to the United Nations to preserve peace and security, and the United Nations must depend upon the students of the military art to solve the practical problems which threaten to prevent the armed forces of the several nations from operating effectively as a team.

My experience as part of the unified command in two large-scale triphibious invasions has taught me that each service benefits directly from the advantages of the others. And similarly, that each service suffers directly from the limitations of the others. None is effective without the others.

General Omar N. Bradley

The Command and General Staff College Presents Personnel Administration

Colonel J. F. Collins, *Field Artillery*
Director, Department of Personnel

This article supplements and further interprets the article entitled "Instruction in Personnel Matters" *by Colonel D. H. Hundley in the* MILITARY REVIEW, *November 1948.—The Editor.*

GENERAL Jacob L. Devers has stated that fighting men are the one important commodity of which there is never enough and for which there is no acceptable substitute. Our national security demands that we make efficient and timely use of the manpower allotted us.

No organization is stronger than its individual members. Everything vital in organized efficiency must begin at the beginning—with personnel.

Both industry and governmental agencies, in recognition of these principles, employ trained personnel technicians as an essential element of successful management. The senior of these technicians, generally called the personnel manager or director of industrial relations, is in most instances selected because of his previous personal experience in the various branches of the organization, in addition to his familiarity with the necessary personnel techniques and procedures.

The Army, in recognition of these principles, must make officers personnel conscious and eliminate the stigma which is frequently attached to the word personnel in officer circles. It must continue, as other efficient organizations do, to familiarize field-experienced officers with the techniques, procedures, and problems of Army personnel management. These officers, when placed in the capacity of personnel officers or commanders at various levels, will be better able to recommend or direct logical and practical policies to ensure the most efficient use of allotted personnel.

How is the Army doing this?

Primarily, the desired results are being accomplished through the Army educational system. Each Army school, from West Point and the Basic School at Fort Riley on up to the Command and General Staff College, instructs in the field of personnel.

Here at the C&GSC, all students are taught the techniques and procedures of the personnel officer (G-1) from the division up to and including the army and communications zone. A selected group of these students then specialize in a 10-week's course devoted primarily to personnel. This course prepares the student for duty as a personnel staff officer on the higher or policy-making levels to include Department of the Army, Zone of Interior army, and theater army headquarters. The

The goal of the Department of Personnel is to prepare officers for personnel assignments on high-level staffs, to develop techniques of administration, and to increase efficiency of personnel management

Department of Personnel is charged with this mission.

The personnel administrator in the Army is not a specialist in the sense of knowing only one subject. However, while assigned to a G-1 position, he devotes himself to the personnel aspect of the commander's operations. The faculty of the Department of Personnel are specialists of the latter type. They have commanded units or held important staff assignments. Some few have been G-1s. While here, they devote themselves to the personnel aspect of the military profession. They present each subject to the student body in a form which develops the appropriate knowledge for a G-1, including the techniques the G-1 should master himself and the use of data which specialists prepare and present for his guidance.

The goal of the Department of Personnel is threefold. The primary mission is to prepare officers for personnel assignments in Zone of Interior army staffs, theater staffs, and in the Department of the Army. Secondary to this is the development of an appreciation of the techniques of personnel administration used in higher headquarters, so that the officers can apply their directives understandingly. Lastly, it is desired that graduates of the course carry with them to whatever command or staff they may be assigned an appreciation of the increased efficiency generated when sound principles of personnel management are conscientiously applied.

Personnel and Manpower Management

Personnel administration of the Army logically separates into two categories.

The first is that of managing personnel as individuals. This management continues from the day an individual enters the service until his service is terminated. Personnel management affects the individual whether he is a member of an army unit or is being processed or trained in one of the manpower agencies of the Army. This function is paralleled by personnel management in civilian organizations.

Manpower management is the second element of personnel administration. Actually, in civilian institutions, this element would also be classed as personnel management. However, in addition to handling individuals, the Army, the greatest user of individuals, is also forced to consider them in bulk—hence the term "manpower management." It treats the policies and procedures of handling the mass of individuals who for any reason are not part of units.

An example illustrates the distinction. Assume that the Army requires 100,000 individuals annually to replace troops lost by attrition. Determining this annual need, determining the qualifications which the replacements must have, procuring the 100,000 men, organizing installations to process and train them to the desired qualifications, and making them available when and where needed, is manpower management. One of these men is Joe Brown, a new recruit. Testing him, classifying him, assigning him to a training unit, testing him to determine that he has developed desired qualifications, and assigning him within his unit, is personnel management. Within the unit, the application of promotion policies, leave policies, and morale measures to Joe Brown is also personnel management. Separating Joe Brown when he has served his required time is more personnel management. But the process of providing replacements so that all of the Joe Brown's can be relieved is, again, manpower management.

Commanders at the highest levels are interested in manpower problems. Commanders at all levels are concerned with personnel management problems; their principal assistants who develop the procedures and techniques are G-1s and comptrollers. Much of the routine is done by adjutants general.

Personnel Management

It is essential that one be familiar with personnel management before entering the second or manpower management field.

Personnel as Individuals. Instruction in personnel as individuals includes military psychology and personnel management problems. Classroom work is devoted to military psychology in applicatory exercises on the policy-making level. The objective is to understand the reaction of individuals to the common requirements of the service. We know that the comprehension of sound principles of human relations is essential to effective policy-making and supervisory techniques. This military psychology course, in a sense a brief review for the student, includes exercises on pre-army development and individual differences, personality adjustment, motivation, and testing.

A series of personnel management instruction closely allied to military psychology is presented at the College and includes visits to civilian industries in Kansas City. The objective is to acquaint the student with current problems, together with their possible solution, which confront the highest army commanders and civilian industry. The problems include methods of providing personnel incentives for procuring and retaining officers and enlisted men, including career guidance and officer career management. Consideration is given to the problems involved in the integration and assignment of groups such as civilian employees, WACs, and Negro troops. One short exercise presents the problems of Health, Hygiene, and Safety. Late in the course, two entirely different types of instruction in personnel management problems are presented. Through the cooperation of industries in Kansas City, the students in small groups are given 2 days of round-table discussions with personnel or industrial relations managers. Following this, through the cooperation of the University of Kansas, a series of seminar groups are held for 1 day here at the College. Professors from the University's School of Business lead the seminar in the latest thinking in the field of their specialty. These latter two activities present for comparison the civilian adaptation, development, and trends in personnel management with those of the Army.

Manpower Management

Manpower management concerns itself with the selection and development of people absorbed in bulk into the Army, with the necessity for the economic utilization of manpower, and with the steps required to accomplish both of these. The overriding fact concerning manpower is that the United States is a nation of 148 million people, faced by combinations of potential enemy countries which may exceed our population, even including allies who may rally to our support. This requires superior plans in any future war. The Department of Personnel leads the student through the problem of making the maximum use of our manpower resources.

The student first reviews historical documents concerning manpower utilization in previous wars, gleaning from history usable procedures, learning from history the sequence of manpower problems which accompany war, and deriving from history principles which he must observe in making future plans more efficient.

Then, the student studies the peacetime structure of the United States Army, the wartime structure of the Army, and the conversion of one into the other. At this stage, the goal to be achieved is spread before him.

Next, the student faces the facts of manpower. He determines the manpower potential of the United States. He compares this with the potential manpower of other nations and combinations thereof.

Then, in detail, he assesses the manpower of the United States to determine its geographical and sociological distribution, its character, and the necessity for and nature of its control during an emergency. At this point, he has before him both the goal to be achieved and an assessment of the raw materials from which a mobilization will develop a proper war machine.

With this foundation, the student is ready to investigate the processing of manpower from mobilization through demobilization. Two conflicts appear. The first results from the demands of industry to retain men with developed skills, and the second arises in the demands of cooperating services for the men possessing skills and high GCT scores. Industry and each service compete for the most desirable personnel. The student learns how Selective Service resolves the competition with industry and the principles which must be observed by the military services to assist Selective Service officials. The merits and weaknesses of the Army, Navy, and Air Force positions with regard to the still unresolved interservice conflicts for personnel are studied.

From this point, intra-service manpower management of the Army receives intensive attention. The necessity for an organization and installations for developing and distributing manpower is presented. Processing and training installations and the replacement system are studied. What classification procedures are necessary to assure assignment of individuals to positions which will utilize their acquired or potential skills? How can centralized control and decentralized operation of individual assignment be achieved? From what sources shall cadres and fillers for new units be furnished? How is manpower to be accounted for during war? How do we determine estimated losses so that the proper number of civilians can be procured for the Army and then trained and shipped in sufficient time to meet the need of replacements in the most efficient manner? What problems arise in moving replacements to overseas commands? Should there be unit or individual rotation, on what basis, and what is the effect of these two systems on the troop basis?

To assist in deriving answers to these questions and to understand common problems, presentations are made by the British, the Air Force, and the Naval Sections of the College. These, together with material prepared and presented by Department of Personnel faculty members and exercises solved by students, promote understanding of the underlying problems. With this knowledge, an officer is ready to consider two final major problems. First, he studies the requirements for a sound distribution of staff and command responsibility in manpower development and distribution. And, second, he develops the manpower considerations in formulating a troop basis and a personnel annex in a mobilization plan.

The officer has not learned a formula by which he can get the solution to manpower problems. He has learned what the problems are, what fundamental facts bear on them, and what principles must be observed in future manpower development and distribution.

Administrative Tools for the Personnel Officer (G-1)

A workman requires tools. During the common phase of instruction at the C&GSC, the student has learned to use the tools of the G-1 of armies, corps, and divisions. He is now ready to master the more difficult instruments by which major personnel problems are analyzed, presented, and solved.

The G-1 on any large staff operates an extensive office, deals with elusive problems of people in indefinite numbers, and finds it necessary to organize data which will support and focus attention upon his

recommendations. To manage personnel, he requires a knowledge of the principles of administration. To marshal data concerning people in large numbers, he must comprehend statistics. The form for making recommendations to high commanders is the staff study. Courses in these subjects are presented concurrently with others in personnel management.

Administrative methods are the subject of a phase of personnel instruction. This phase covers the procedures and techniques which a G-1 uses to operate his own office and to discharge his responsibility for administration and interior management of the headquarters. In certain headquarters, some of these duties may now be exercised by a comptroller. Both the G-1 and the comptroller desire to ensure the maximum efficiency of operations with the greatest possible economy of personnel. The specific subjects given in administration include the principles and techniques of organization, planning, coordinating, directing, work-flow, control, and standardization. These problems include methods of organizing a headquarters, not only with respect to utilization of personnel, but also with respect to location of various parts of the headquarters in a specified area. A reduction or augmentation of personnel allotted to a unit or headquarters presents a problem which the personnel officer and comptroller must solve for their commander. Standardization of forms and reports leads to efficiency. The technique of conducting and participating in high level conferences is explored, and the process of preparing the Army budget is explained. Mastery of the science of Administrative Methods enables an officer to attack management problems intelligently, efficiently, and effectively.

Statistics are also studied. Why must a G-1 understand statistics? Although the unit of personnel is the individual, the mass of the Army must be considered as numbers of individuals. Statistics provide the device for rendering into measurable and intelligible terms facts concerning millions of people. The statistical devices used by officers are limited to tables, charts, and graphs. Series of numbers become understandable when reduced to orderly form and are summarized in a table. They become more readily intelligible when they are presented as a chart or graph because they reveal comparisons obvious to the eye. An officer can simplify his problem of presenting numerical data by organizing it into these forms.

But the problem does not end there. Armies have become so large that even the task of counting their individuals is difficult; to determine facts by "counting noses" when the "noses" are scattered over the world becomes impracticable. So, sampling must be resorted to. Consequently, a G-1 must understand the technique of sampling and must learn to interpret and evaluate the worth of results from any sample. The student need not learn the technical preparation of data beyond the point required to appreciate its meaning. But to serve creditably as a G-1, he must learn to interpret the data which his technician assistants prepare for his guidance.

The pay-off for each individual G-1 is his ability to present clear and sound recommendations to the commander. The higher the staff of which he is G-1, the greater is the obligation to present the facts and logical conclusions and recommendations based thereon, in concisely written, carefully-chosen words, in a standardized form—the staff study. The students of the Department of Personnel are intensively instructed in staff writing, and they are required to prepare four staff studies typical of those required in the Personnel and Administration Division, Department of the Army. To stimulate interest and increase knowledge in the fields of phychology, personnel management, and administrative meth-

ods, current problems in these fields are covered.

Instruction in Administrative Methods, Statistics, and Staff Studies provides the student with the tools required to prepare and present the recommendations which he develops. This course provides him a good basis for use of all three.

Civilian Populations

Closely related to personnel administration in the Army is the control of civilian populations in areas which the Army occupies. The problems of control of troops and of controlling the civilians who surround them differ only in the employable control techniques. Department of the Army planning to control civilians is focused in the Military Government Division of the Office of the Provost Marshal General under the general staff supervision of the Director of Personnel and Administration. In theater and lower headquarters, this continues to be a problem of G-1.

To equip the commander and staff officer with knowledge which will enable him to supervise control of civilian populations, the Department of Personnel teaches military government. Two aims are fundamental to this. First, if officers are to govern foreign peoples, they must learn the basic principles and techniques of their own government and must appreciate the techniques which differentiate it from other governments. Second, they must be able to turn general political directives into explicit military policies which will enable the responsible commander to impose the will of the government of the United States upon a defeated population. It is a problem of directing people.

To accomplish these two aims, instruction is given on government administration, on procedures of the Department of the Army and of a theater headquarters, on the functions of a theater army headquarters, and on the study of documents appropriate for field army direction of detailed military government. Through typical examples of staff procedures concerning military government, the student is given an understanding of the process of controlling an occupied people.

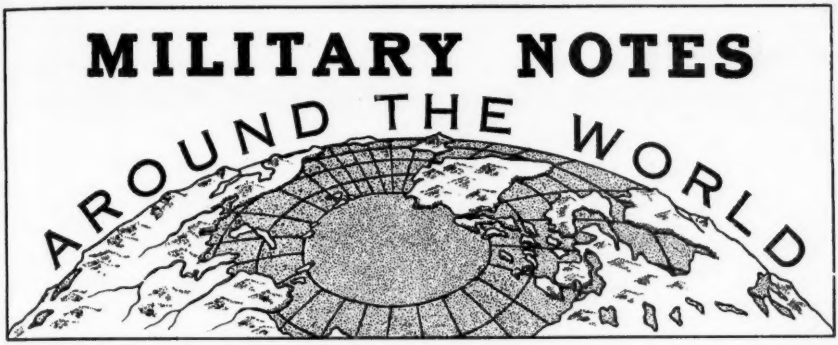
Summary

Equipped with knowledge and understanding of personnel tasks at the principal policy-making levels, those graduates of the C&GSC who specialize in personnel provide a solid core of young field grade officers who may be expected to consider the personnel implications in their day-to-day actions, regardless of the capacity in which they may be serving. Their contributions will do much to ensure that policies and procedures affecting personnel—individually and collectively—will be sound, timely, and adequate.

If a war is to be won, the root and the source of the enemy's threat and of the hostile action must be seized and destroyed. Europe had to be invaded, Germany had to be overrun, the V-sites had to be destroyed, Mussolini and Hitler had to die. It was men—men with machines and weapons, it is true—but in the last analysis, men, who did these things. The war in Europe, as did the war throughout the world, and as proved in all the wars of history, proved again the basic military concept that man is the principal weapon of war.

Major General Charles L. Bolte

MILITARY NOTES AROUND THE WORLD



UNITED STATES

Radiation Detector

Production has started on a new type of radiation detecting and measuring device suitable for use by both military and civil defense organizations, the Department of the Army announced recently.

As the first instrument of its type designed specifically for rugged field use, the device is considered a significant contribution to radiological defense. It employs what physicists call an "ionization chamber," not new in itself but new in this form. Specifications for the device were drawn by the Army Signal Corps.

Intentionally made less sensitive than the Geiger counter, the new instrument is designed to detect and measure relatively large concentrations or radiation, such as would result from an atomic bomb blast. The Armed Services call it a "radiac set," radiac being a coined word standing for "radioactivity detection, identification, and computation." Agencies other than the Signal Corps—among them the Atomic Energy Commission, the Department of the Navy, and the Department of the Air Force—also are developing a variety of instruments for radiation detection to meet their particular needs. The over-all program among the military is coordinated by the Armed Forces Special Weapons Project.

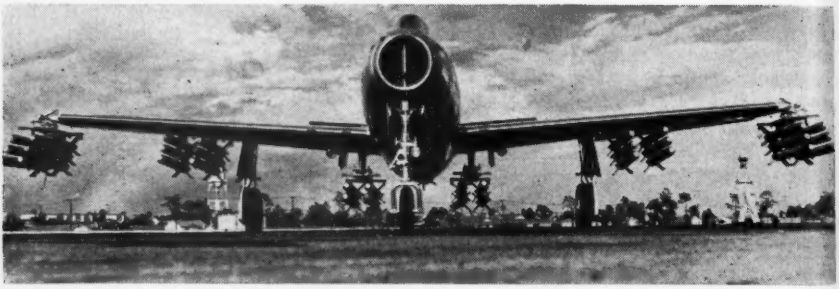
The new radiac set is designed primarily for use in training troops as radiation survey teams.

The instrument has been designed with an eye to possible combat use. It contains standardized components, will stand up under shock and vibration, and can be repaired easily in the field. It is a small instrument, 10½ inches long in its greatest dimension, and weighs 10 pounds.

Within the steel case of the new radiac set is a gas-filled chamber (the "ionization chamber") which contains two electrodes. The electrodes carry positive and negative electrical potentials, respectively. When the instrument is carried into a "hot" area, gamma rays pierce the gas chamber's wall and dislodge electrons from gas atoms. The electrons, negatively charged, are attracted to the positive electrode in the chamber. The atoms from which the electrons have been dislodged now are positive ions and are attracted to the negative electrode. A very weak current flows, is amplified by the electronic system in the radiac set, and is read off a meter.

The instrument would be used in regions of radiation intensity beyond the capabilities of the Geiger counter.—Department of Defense.

Jet Fighter-Bomber



The *F-84E* Republic *Thunderjet*, above, a high-speed long-range jet fighter, has been equipped with 32 5-inch, high-velocity rockets for use against ground targets. The fighter also has six .50 caliber machine guns as fixed armament. This weight of firepower even exceeds that carried by the World War II predecessor to the *Thunderjet*, the *F-47 Thunderbolt* fighter.—Department of Defense photo.

Recording Device

The development of a mechanical stenographer that flies with guided missiles and records electrically dictated test data was announced recently.

The device is fixed in the nose of guided missiles. A recording tape is led into an armored container that withstands the shock of crashing into the ground with the exhausted rockets.

At the end of one test with a guided missile, the armored container with the tape was the only intact piece of equipment found in the crater dug by the spent rocket.

The compact recorder weighs only 46 pounds and is 10⅝ inches long and 8½ inches in diameter. The device records some 200 factors such as air pressure, temperature, speed, and gyro positions on a 150-foot steel tape by electrical signals from scores of instruments.

Once recovered after the crash, the tape is played back through a transcriber and the information plotted on charts. The recordings cover as much as 110 seconds of the guided missile's flight through the upper space.—*The New York Times.*

New Fuel Development

The Navy is developing a motor fuel out of air and water.

This is hydrozine. Its molecule is almost the simplest possible combination of the two basic elements, hydrogen and nitrogen. The fact that work on hydrozine and a companion fuel, nitromethane, was under way was announced before the American Chemical Society by the Chief of the Office of Naval Research.

It was agreed that hydrozine might at least be an opening step toward independence from carbon compounds, such as gas and oil, in some special fields of motor fuels.

Nitromethane is a combination of nitrogen with the simplest of all the constituents of petroleum, the foul-smelling marsh gas which constitutes the atmosphere of some of the planets.

Work on both of these substances had been started in Germany before the end of the War but had not reached any practical results. The formulas were among the enemy military secrets obtained when teams of allied chemists crossed the Rhine with the American and British armies.—*The New York Times.*

Ordnance Developments

The US Army Ordnance Department program provides for the development of both light and heavy motorized equipment. Above, a new ¾-ton truck equipped with an air-cooled engine. Below, a new waterproof engine makes it possible to operate a jeep with all working parts completely submerged; only the exhaust, an air-intake pipe, and the driver need be exposed.—Department of Defense photos.

Rubber Lifeboat

A new-type rubber lifeboat, now in production by the B. F. Goodrich Company, Akron, Ohio, while weighing only 186 pounds complete with emergency equipment, has sufficient buoyancy to support 12 men inside and 13 others clinging to lifelines hanging over the edges.

It is constructed of American-made rubber, is 14 feet long and 6 feet wide when in use, but on shipboard is a package 4 feet long and 2 feet wide. When thrown overboard in an emergency, a ripcord is pulled. The waterproof zippered cover unzips itself and pops off, whereupon the

Emergency rubber lifeboat now in production for the Armed Services.

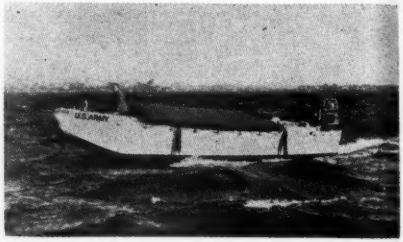
boat unfolds, inflates itself from gas cylinders, and opens right side up in the water.

Two pounds of air in the twin-compartmented rubber tubes provide sufficient buoyancy for the load of 12 plus 13 men. Two inflatable floor partitions can be tossed into the sea as life preservers for an additional 10 men. Tests indicate that the boat will ride the waves easily even in a rough sea.

Equipment contained in the packaged unit includes a tent-like canopy, four wooden paddles, two air pumps, two carbon dioxide cylinders, a small boarding ladder, food and water rations, fishing kit, flashlight, signal mirror, and dye sea markers.—*Science News Letter.*

Sectional Cargo Boat

Built in three parts, and easily disassembled, this 32-foot, all-aluminum Army cargo boat was designed so that it can be transported in a cargo plane. It



is intended especially for Arctic operations. The rear section, with its 60-horsepower engine, can be used as a separate power unit to propel rafts and barges.—*Science News Letter.*

Sound Laboratory

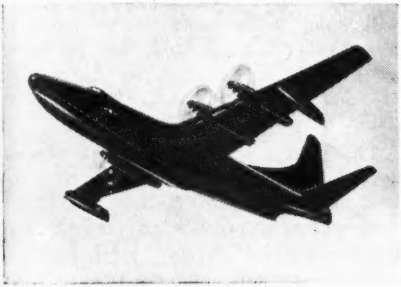
Plans for the construction at Orlando, Florida, of a permanent Navy Underwater Sound Reference Laboratory, used for testing and evaluating submarine and antisubmarine underwater sound equipment, are being completed by the Bureau of Yards and Docks.

The new installation will replace temporary structures located nearby. The laboratory, operated by the Office of Naval Research, is the only facility of its kind in the world.

The new laboratory will provide complete year-round facilities for solving underwater sound measuring and calibration problems. It will develop apparatus and techniques for the quantitative measurement of underwater sound transducers and certain electronic equipment. It also will make measurements on transducers and hydrophones submitted to it, since the basic purpose of the laboratory is to provide an independent authority to which sonar equipment may be referred for evaluation.—Department of the Navy.

New Flying Boat

The Navy's ultra fast *XP5Y-1* patrol plane is nearing completion at the San Diego, Calif., plant of Consolidated Vultee Aircraft Corp. Grossing more than 60



tons, the *XP5Y-1*, shown above, is the largest flying boat ever built by Consolidated.

The new-type flying boat incorporates a high length-beam ratio hull which provides superior hydrodynamic characteristics over previous aircraft of this type. Its powerful turbo-prop engines are designed to develop at take off more horsepower per pound of airplane weight than some modern fighter planes, providing exceptionally quick take off and high speed. Other features of the advanced design are a high wing and single-fin tail. Interior styling and furnishings for crew comfort are designed to improve personnel efficiency on long missions, with no sacrifice in the tactical efficiency of the airplane.—*American Helicopter.*

Underwater Telephone

New instruments to increase submarine effectiveness are being developed by the United States Navy at its sound laboratory at New London, Connecticut. Among these devices is a telephone for voice communication through water which should prove of especial value in communication between a submarine in distress and a searching party.—*Ordnance.*

New Parachute

The Navy reported recently that it had a new nylon parachute with an "extended skirt" for use in bailing out of jet planes at high speeds.

The new parachute, to be standard equipment by 1950, is basically like the ordinary one. But the extension of the main-opening end of the canopy gives it a 28-foot instead of a 24-foot diameter.

Weight of the two parachutes is about the same because the canopy, pack, and

Extended-skirt parachute.—Department of Defense photo.

harness of the new one are made entirely of nylon.

The new parachute has a gentler-opening action and cuts the initial shock almost in half. Those now in use impose a force of 25 to 30 times that of gravity at speeds of about 300 miles an hour.

The new parachute also provides a more stable descent because it eliminates the pendulum motion of swinging back and forth in approaching the ground.—*The New York Times.*

'Air Raid' Signals

The regular commercial broadcast channels did double duty during an experimental week in September 1949, and as a result 10 states in the Northeast were saved from an "enemy" air attack. Almost all radio listeners were unaware of the duplex role.

During Operation *Lookout*, in which thousands of civilians acted as air raid spotters and message relayers, important signals were disseminated quickly by one of the broadcasting companies that employed the usual commercial frequencies.

The air raid signals, sent in a few seconds between cities hundreds of miles apart, were inaudible to the public because special radio receivers had to be used to pick up the interjected alarms.

"It was really an experiment during the exercise in September," the chief of the civil operations division of the Eastern Air Defense Force declared. "But now we have the equipment to make it very worthwhile. The system is simple, efficient, and economical.

"During Operation *Lookout*, the National Broadcasting Company sent the signals out from Port Washington, Long Island. They stayed in the regular broadcast channels, transmitting between 20 and 40 cycles. The signals we relayed rode right along with the commercial broadcasts, and it's as simple as that.

"Of course the police and the air raid warning centers have to have special radio receivers, but they're not expensive.

"There are four signals to be relayed—yellow, the first alert; blue, the 15-minute warning; red, the definite general alarm to the public, and white, the all-clear. The four alarms are sent out in the form of a prearranged signal in international Morse Code. There is no time wasted.

"This radio system will be considered secondary for the area in which the Air National Guard planes flew in September. The reason for that is the only flaw in the system: you don't get an answer and know exactly who received the alerts. For the general Eastern area, telephones will have to be used as the primary means of communication, but the other system will be all right for the rest of the country. Eventually it will all work like a telephone dial system."

The system was given its first widespread military test recently during Operation *Lookout* in the 10 Northeast states. It showed great promise, particularly from the standpoint of speed.

In World War II, commercial radio stations stopped broadcasting during alerts so that enemy raiders could not "home in" on them with radio compasses. Under the new system, however, intermittent broadcasts would spread the coded alerts. Only 7 seconds are required to send a signal from a civilian center to the warning centers that alert the intercepter pilots.

During Operation *Lookout*, more than 100 Air National Guard planes "raided" the East Coast. An alarm was sent from a command post of the Continental Air Command to Station WFEA in Manchester, New Hampshire. The signal was transmitted to a radio station in Boston, which in turn, sent it on to the air raid warning center at Montpelier, Vermont. Thus, in several seconds, the defense forces knew that an air "attack" was in progress.

In another instance, a signal originated at a Long Island Command post and was sent during a commercial broadcast from Port Washington to Scranton, Pennsylvania, where it was received by civil defense headquarters.

Throughout the exercise, the public remained unaware of the part played by the radio system.—*The New York Times.*

POLAND

Army Organization

Analysis of intelligence reports available indicates that the Soviet Union has virtually incorporated the Polish Army into that of the USSR.

This feat has been accomplished by the issuance on a large scale of dual citizenship to high ranking Soviet officers who have been posted to Warsaw. Marshal Konstantin K. Rokossovsky's was only the last and most dramatic of these appointments.

While President Boleslaw Bierut is, technically, commander in chief of Poland's armed forces, Marshal Rokossovsky is the actual chief. The head of his General Staff is General Korzcyc, a Soviet officer who has been working on reorganization of the Polish Army since 1945. One of General Korzcyc's deputies, Major General Siwicki, is also a Soviet officer.

In charge of training and organizing Poland's land forces is one of the Ministers of Defense, General Stanislaw Poplawski of the Soviet Army. His Chief of Staff is Soviet Major General Siennicki.

The following Army inspectors are understood to be Soviet officers: For artillery, Lieutenant General Wibewziuk; for signals, Major General Malinowski; for engineers, Lieutenant General Bordzilowski; for armored units, Major General Mierzycan; for the frontier corps, Colonel Garbowski.

Poland's Air Force is under the command of another Soviet officer, Major General Romeyko. Although the Navy is technically commanded by a Pole, Rear Admiral Steyer, it is understood that the real boss of that service is Commander Urbanowicz of the Soviet Fleet.

Three of Poland's four military commands are held by Soviet officers. Lieutenant General Rotkiewicz heads the Warsaw military district. Lieutenant General Pulturzycki heads the Pomeranian military district. Lieutenant General Strazewski heads the Breslau military district. Only the Cracow command is held by a Pole, Lieutenant General Fossor.

Many of the names listed in the foregoing would appear to be Polish. However, it is understood that some are *noms de guerre* and others have had their spelling adopted to the Polish language.

As Poland's forces were slowly built up during the past 4 years, there was a need for additional Soviet personnel at higher echelons, and they have been quietly provided by the Kremlin. The result is that today Poland's army is in a comparable position to that of the Indian Army vis-a-vis Britain before India became a Dominion.

A majority of Poland's high officers are Soviet. Absolute control remains in the hands of Moscow. All equipment and tactical and strategical direction comes from the USSR.

The manpower alone remains Polish. Even this, as in the case of the Indian Army, is somewhat augmented by the presence on Polish soil of some Soviet units in the neighborhood of Silesia. A certain number of British battalions used to be assigned to Indian divisions.

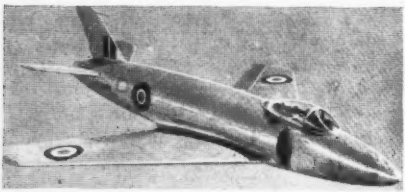
Thus, Moscow has been able to create for its potential use a sizeable "colonial" army of about 250,000 men.

The Polish Army includes 16 infantry divisions (4 in each military command), 3 artillery brigades, 10 tank regiments, 5 engineering regiments, 6 signal regiments, 4 artillery assault regiments, and a number of special independent units such as rocket artillery. To this can be added 11 brigades in the frontier corps and 18 regiments in the security corps, which is composed of a reliable elite and used for political purposes.—*The New York Times.*

GREAT BRITAIN

Experimental Jet Fighter

The *Supermarine 510* experimental jet fighter, powered by a Rolls-Royce Nene engine, is intended for research into the



***Supermarine 510* jet fighter.**

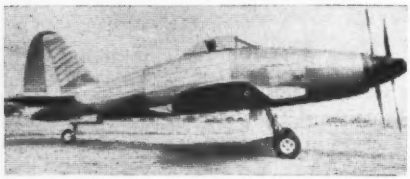
problems of high-speed operational flight. It is notable in that it is the first British aircraft to have swept-back surfaces all around.

The *510*, which has yet to be given an official name, made its first flight in December 1948. Since then, it has been engaged in extensive flight tests.

It is claimed that this plane is capable of exceeding the speed of sound. However, exact details as to the performance of the *510* are still secret. It has a span of 38 feet, 8½ ins., a length of 38 ft., 1 in., and a wing area of 273 sq. ft.—*The Aeroplane* (Great Britain).

Navy Fighter

The *Westland W.35* is powered by an Armstrong Siddeley Python turbine of



3,650 static horsepower. The two intakes at the leading-edge wing junction are oil coolers and the jet exit is behind the fuselage junction with the trailing edge. The aircraft will probably be used by the Navy as a standard strike fighter.—*The Aeroplane* (Great Britain).

Civil Defense

The British government began a national recruiting drive recently for its new volunteer civil defense organization. The drive was announced by the Home Secretary, who emphasized that "this does not mean war is likely."

Explaining that civil defense had become an essential "fourth arm" of national defense with the Army, Navy, and Air Force, he declared it could no longer be left to last-minute improvisation.

The Home Secretary said civil defense functions throughout the country would be performed by four major organizations, each responsible to the Home Office. These will be the Civil Defense Corps, the Auxiliary Fire Service, the National Hospital Service Reserve, and the Special Constabulary.

The Civil Defense Corps will be organized in divisions, each responsible to a local authority such as the County Council or the County Borough Council. The divisions will consist usually of six sections: headquarters, wardens, rescue, ambulance, pioneer, and welfare.

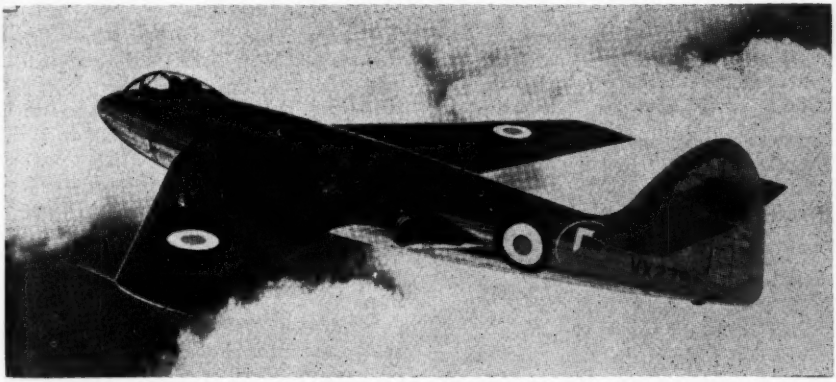
Training for the new corps will be done by volunteers in spare time under supervision of full-time civil defense instructors attached to each local authority headquarters. The volunteers will be reimbursed for out-of-pocket expenses and will eventually receive uniforms and badges.—*The New York Times.*

Jet Fighters

The Air Secretary recently outlined a plan for doubling the Royal Air Force's jet fighter strength by the middle of 1950, and the development of jet bombers.

The Secretary said that jet fighters now under development were a great advance on present types. An interim twin jet bomber, with speed approaching 500 miles an hour, also is being developed.—*The New York Times.*

Hawker P.1052



Powered by a Rolls-Royce Nene turbo-jet, the *Hawker P.1052* incorporates the latest ideas in British jet-fighter design. During its comparatively brief existence, it has already shown its great potentialities.—*The Aeroplane* photo.

Reserve Battleships

An announcement by the Admiralty recently dealt with the immediate future of Britain's five battleships. Four of them—the *Duke of York*, the *King George V*, the *Howe*, and the *Anson*—are to be placed in reserve; the *Vanguard*, which returned from the Mediterranean during July, is to join the Training Squadron in place of the *Anson*.

This plan has been adopted by the Navy in order that a larger number of smaller ships may be kept in full commission to meet peacetime commitments and, in particular, to ensure that a maximum provision for convoy protection can be provided immediately in the event of an emergency. It is in line with the policy of other nations, including the United States, who have 14 battleships in reserve and only one in training commission—the *Missouri*, now flagship of the Midshipmen's Training Squadron.

The placing of the *King George V* Class battleships in reserve and the reduction of the *Vanguard* to training status does not imply that there is no further use for battleships. The contrary is the case. In the foreseeable future, the battleship will still have a positive role to play and in war she would have important tasks, whether or not an enemy possessed battleships.

The battleship remains the best form of distant or close cover for ocean convoys and would certainly prove the finest deterrent to surface attack on shipping lanes.

Further, the battleship is still the most effective seagoing antiaircraft platform, possessing also the most comprehensive forms of warning radar and gunnery control. The hitting power of the battleship in any combined operations would always be regarded by an enemy with considerable apprehension. Above all, the battleship is still the most difficult ship to sink.

In an emergency, however, the primary need would be to provide a maximum number of vessels for antisubmarine and minesweeping work.—*The Fighting Forces* (Great Britain).

GERMANY

Poison Gas

Huge stocks of German chemical warfare material are gradually being dismantled and dispersed in the forests of Baravia. It is estimated that the Germans stored

about 60,000 tons of gas shells in that vicinity. Here, a German worker, in gas mask and full protective rubber clothing, is at work dismantling poison-gas stores.—*The Illustrated London News.*

FRANCE

Sub Down 17 Days

The French submarine *2518* broke surface at Toulon recently after a 17-day underwater voyage from Lorient. By remaining submerged for 2,000 miles, the German-built *schnorkel*-type submarine bettered its own record of last year when it completed Brest-to-Casablanca and Casablanca-to-Toulon runs without surfacing.—*The New York Times.*

CANADA

Iron Ore

The Premier of Newfoundland announced recently details of a gigantic iron ore industry to be opened in the rich Labrador field. He said the industry was expected to produce more than 10 million tons of iron ore a year.—*The New York Times.*

USSR

Russian Submarines

During a recent defense debate in the British House of Lords, a former British ambassador to Spain declared: "The Russians are busily engaged, at present, in the transformation of an Albanian island into a submarine base. This signifies nothing less than that Russian submarines will operate in the Mediterranean.

"The Russian submarine threat is increasing and threatens to alter the entire strategic picture in the Mediterranean."

A British Navy spokesman declared that this information was unknown to his superior office. Unofficial sources, however, added to the ex-ambassador's assertion that the Albanian island of Saseno is the one referred to as being in process of transformation into a submarine base.—*Basler Nachrichten* (Switzerland).

SPAIN

Record Budget

The Spanish Government recently asked Parliament to approve a budget of nearly 18 billion duros (roughly 1.8 billion dollars), the highest in the country's history.

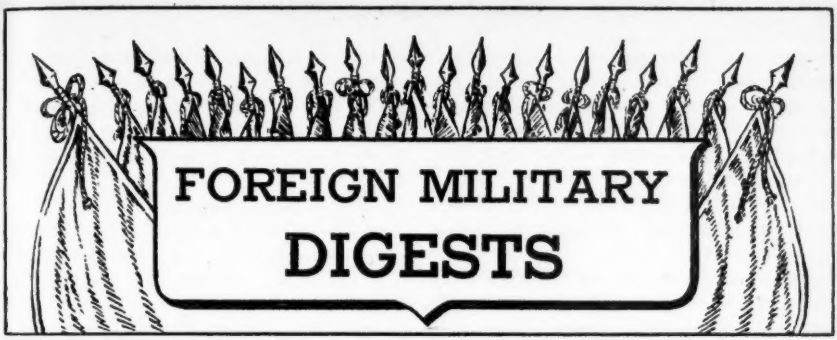
The biggest single appropriation of a little more than 3 billion duros (300 million dollars) went to the Army.

The combined armed forces, including the civil guard and the armed police, were allotted about 6.5 billion duros (650 million dollars).—*The New York Times.*

URUGUAY

Planes to Uruguay

A group of air force officers from Uruguay recently visited Kelly Air Force Base, Texas, to take delivery of $300,000 worth of stored aircraft, including 25 *F-51s*, 2 *C-47s*, and 11 *B-25s*. The planes were to be flown to Uruguay early in 1950.—*Army and Navy Journal.*



The Soviet Conquest of East Prussia

Translated and digested by the MILITARY REVIEW from an article by General A. Niessel in "Revue de Défense Nationale" (France) June 1949.

THE Russian victory of December 1941 at Moscow enabled the Soviet armies to resume the initiative in certain sectors and made it impossible for the Germans to conduct *blitz* operations on the Eastern Front similar to those conducted in Poland and France.

The Germans were still able to plan and execute large offensive operations in 1942, but after the retaking of Stalingrad by the Russians and the battles of Kursk in 1943, the Germans were clearly dominated by the Russians. The Soviet High Command demonstrated its ability to coordinate simultaneous operations by several groups of armies deployed over extensive fronts. Deep breakthroughs were planned and directed in such a manner that they converged on large groups of German forces, which were then encircled and annihilated.

This strategy was possible because of the numerical superiority of men and artillery possessed by the Russians. Furthermore, the Russian air forces gradually built up to equality, and then superiority, in relation to the German air forces. The Allied strategic bombing of Germany, and the war in Italy and on the Western Front, depleted German aviation. Also, great quantities of matériel were provided Russia by England and the United States. As a result, Russian armies were able to sweep into Rumania, Hungary, and Poland, and on to the frontiers of Germany in 1943 and 1944. At the beginning of 1945, one of these operations, employing two army groups, had as its objective the conquest of East Prussia and the destruction of the German forces there. These army groups also were to provide protection for the northern flank of Marshal Jukov's armies pushing westward from Poland to assault Berlin.

As in 1914, the attacks on East Prussia were to come from the east and south. At that time, however, the Russians were not able to synchronize their efforts. Seven days passed between the victory at Gumbinnen of Rennenkampf's army advancing from the east and the beginning of the action of Samsonov's army from the south. This latter action ended with the Tannenberg disaster. In 1945, on the contrary, the operations of the two groups of Soviet armies were closely coordinated. They also supported the movements of the armies of Marshal Jukov, which were attacking toward Berlin.

After the battle of White Russia in the summer of 1944, the Russian army groups from that area advanced rapidly westward. Between 3 and 26 July, they had made an advance of nearly 300 miles, or an average

of about 12 miles per day. Their first objective was to surround East Prussia on the north, east, and southeast. On the southeast, the Soviets installed themselves on the Narew, seized possession of Ostroleka on 6 September and Lomza on the 13th, and established bridgeheads on the north side of the river. By 10 October, they had reached the Niemen all the way from its mouth to Jurbarkas, 42 miles east of Tilsit. Crossing the eastern frontier of Prussia, the Russians occupied Goldap and numerous other localities. The German communiques of 24 and 25 October spoke of a large Soviet armored offensive beyond the Narew which apparently ended in failure; the Soviet communiques made no mention of it. While these operations were in progress on the borders of East Prussia, the Russian army groups on the Baltic front cut off 14 German divisions in Kurland which continued to resist up to the end of the war.

Importance of East Prussia

East Prussia was of great strategic significance to Germany. It stood as a threat to the USSR, making it possible for the Germans to launch counterattacks from the north against the Soviet armies which had penetrated into Poland. Since their defeat at Stalingrad and at Kursk in 1942 and 1943, the Germans had extensively developed their defensive organizations in the Province. They had constructed several new fortified zones comprising numerous antitank defenses, mine fields, and wire obstacles. In certain areas, these defensive zones were 27 miles deep. Gumbinnen, Insterburg, Tilsit, almost all other localities, and even isolated farms, had been transformed into strong defensive positions. The Königsberg Fortress was surrounded by three lines of resistance comprising 24 forts and numerous other concrete works. The German forces in East Prussia consisted of three armored armies and 40 infantry divisions with large quantities of artillery and special troops for support.

The Soviet High Command decided to use the Second and Third Army Groups of White Russia in the assault on East Prussia. The objective of this plan was to cut off the troops occupying East Prussia from the rest of Germany. The Third Army Group was to execute a deep frontal attack from the east, directed toward Königsberg, passing north of the lakes of Mazuria. Its ultimate objective was to seize possession of the fortress at Königsberg. The Second Army Group, avoiding the lakes and the most powerful fortified zones on the south and west, was to attack northwestward in the general direction of Marienburg. This maneuver, if successful, was designed to effect the encirclement and annihilation of the German forces in East Prussia.

This plan was bold, but it was based on exact calculations with reference to the peculiarities of the German defense and the means required for overcoming it. Its successful termination was to bring about the annihilation of the north wing of the German front. After this, the Soviet troops could proceed on the shortest routes for encircling Berlin on the north and thus guarantee the security of the armies of Marshal Jukov as he attacked over the main axis, Warsaw-Poznan-Berlin.

The Third Army Group consisted of 26 infantry divisions and large groupments of tanks and artillery, particularly mortars and rocket projectors which were to be used against fortified cities and the Königsberg Fortress.

The Second Army Group consisted of 23 infantry divisions. It also had five armored divisions and many cavalry and motorized formations, all of which were to be used in rapidly exploiting the initial breakthrough.

Training for the Offensive

The Russian advances made since the summer of 1944, and the resulting supply

difficulties, caused the offensive to be delayed until the middle of January 1945. This time was utilized in preparing the troops for the role they would have to play in the assault.

Aerial photographs were distributed, even down to battalion commanders, in order to acquaint them with the attack zones. The information thus provided was complemented by ground reconnaissance and interrogation of prisoners. Reconnaissance was conducted over the entire German perimeter up to the moment of the attack, to hide the Russian intentions. Missions were assigned on the basis of the data gathered. In many cases, units constructed relief maps and sand tables of the terrain for the familiarization of noncommissioned officers.

Cadre exercises and maneuvers with troops were carried on for nearly a month. Great attention was given to the instruction of officers and noncommissioned officers before the exercises with troops. These exercises began with a study of assembly positions. They then passed through all phases of the attack, with the help of the artillery, tanks, and planes which were to cooperate with the infantry in the operation. Fortifications previously seized from the Germans, or terrain especially organized for the purpose, were used in training. The fortifications were located a few miles back of the front and were complete with trenches, permanent bunkers, mine fields, and wire obstacles. Street fighting was studied in previously prepared terrain and in localities which had been seized from the Germans.

Particular attention was given to the young soldiers who had recently been taken into the armed forces. The men were trained in overcoming obstacles of all sorts by means of day and night exercises, and in foggy as well as clear weather. Instruction was given in hand-to-hand fighting in trenches and in the use of scaling ladders. Combat firing with live ammunition was practiced in order to accustom the men to firing on the march. The Russian soldiers were taught to follow closely behind artillery barrages, to maneuver with tanks and self-propelled artillery, and to take advantage of smoke screens. Units were trained to make quick use of points seized and to direct planes to strongpoints by means of visual signals, ground strips, and tracer projectiles.

Special attention was given to the training of the officers in repelling counterattacks. It was recommended that the leading attack echelons use only a small number of men to contain centers which continued to resist, leaving the task of reducing them to other echelons. The smallest infantry units, companies and even platoons, were trained in close coordination with accompanying artillery and tanks. Attention was also given to the resumption of an attack that might be momentarily stalled, and to the resumption at night of an attack which had failed during the day.

This preliminary preparation of the troops lasted about a month, even longer in certain cases. The time was also used in preparing jump-off zones, which were located as close as possible to the Germans. Work was carried on at night. Thousands of German mines were cleared by the engineers.

The training of the infantry, the principal arm of the attack, was regarded as the most difficult task to be accomplished. It was necessary that all the men should be extensively trained in the use of individual weapons. One of the army commanders of the Third Army Group recommended to his generals that they have three battalions in each division trained especially for the execution of the initial attack, two for exploitation of the breakthrough, three for night operations, and one to act as the advance detachment, in order that preparations might cover even the most minute details. Each division taking part in the Königsberg attack had attack detachments consisting of one company of infantry reinforced by artillery, machine guns, and tanks. Some Soviet military critics have judged this specialization to be excessive and have expressed the opinion that all the infantry should be trained for any mission it might have to fulfill.

Abundant artillery forces had been provided for the initial preparation preceding the attack. There were 200 to 250 guns and mortars per kilometer of front, about a fourth of which were to fire direct fire at short range—200 to 800 yards. As in the other large Soviet offensives, fire control was highly centralized during the initial preparation. It was divided during the execution of the attack in order to insure immediate support by both artillery and tanks to all the subdivisions of the infantry. The air forces cooperated in the preparation by using bombs and machine guns and by preventing German aviation from operating.

Liaison between aviation and tanks and the infantry was insured by attaching especially trained aviation and tank officers, equipped with radio sets, to the infantry. Liaison inside the regiments and divisions and the higher headquarters was carefully worked out in advance.

Infantry attacks on successive defense zones were to be supported by the necessary number of tanks and self-propelled guns. Large groups of tanks and motorized or cavalry units had the mission of making deep penetrations; they were to be held in reserve until the infantry had broken into the principal defense position.

Opening the Offensive

The offensive of Third Army Group began on 13 January 1945. Its principal axis of attack was the Gumbinnen-Königsberg highway. The intended breakthrough front was only about 15 miles wide in order to permit deep echelonment of the attacking forces. Other attacks were to be executed farther to the north, beginning at the Niemen River, and farther to the south to force the passages between the lakes of Mazuria.

After 5 days of violent fighting, during which Soviet troops seized 42 successive lines of trenches, they arrived at the Inster River, north of Insterburg. The large tank formations then passed through the breach, first heading northward to strike the flank of the Germans. They then turned back toward the southwest to complete the encirclement of Insterburg. This maneuver facilitated the crossing of the Niemen and permitted the Soviet troops to seize possession of Tilsit and Kaukhenen, 13 miles west of Tilsit. On 22 January, Insterburg, attacked from the rear, fell into the hands of the Russians. This success helped the offensives farther to the south, directed against the Angerapp and the Mazuria Lakes. Angerburg was taken on 24 January and Loetzen on the 26th. Königsberg was encircled on 29 January.

The principal offensive of the Second Army Group began a day later, on 14 January, in a general northwesterly direction toward Mlawa. At the same time, farther to the east, other secondary attacks were launched against the southern frontier of East Prussia to help the attacks of the

Third Army Group against the intervals between the lakes. The principal attack gave the Russians possession of Makow and Ciéchanow on the 17th, and of Przasnyse on the 18th. It was necessary to seize several successive defense zones before reaching Mlawa on the 19th, after an advance of from 18 to 21 miles. At this point, the armored forces behind the advance moved forward during the night. They encircled Mlawa on the east and west in a move to cut off the retreat of the strong German garrison, which was occupying solid defensive positions consisting of four lines of trenches and two antitank ditches.

The following day, Mlawa was completely occupied by Russian infantry. On 20 January, tanks seized the heavily fortified town of Neidenburg and continued on in the general direction of Deutsch-Eylau and Marienburg. At the same time, another group of tanks, followed by cavalry units and motorized troops, headed for Allenstein, which was captured on the 22d. This maneuver facilitated the passage of the left-wing elements of the Third Army Group and of the right-wing elements of the Second Army Group across the line of lakes. The German forces, severely punished, fell back in disorder, some toward the Baltic and others toward the lower Vistula.

In 7 days, the armored columns of Second Army Group covered 140 miles, reached the sea, and cut off East Prussia from the rest of Germany. They had captured numerous obstacles and had repelled violent counterattacks. At Deutsch-Eylau, the German defensives rested on a lake on one flank and on a forest on the other. The Russian armor circled the city with two columns, cut off the retreat, and attacked from all sides. The garrison surrendered the following day when a tank unit penetrated the city from the rear.

Farther on, on 25 January, another obstacle was overcome at Elbing, a fortified place which was strongly organized with trenches, antitank ditches, and mines. The Germans believed that the front was still some 80 miles away when the advanced guard of the Russian tanks arrived. The tank units caught the garrison entirely by surprise, rushed into the city, covered the streets with fire and continued on through, leaving the city in panic. The main body of tanks turned to the east of Elbing, thus cutting the route leading from Königsberg. The following day, 26 January, the Russian tanks mopped up the region northeast of Elbing as far as the shore of the Haff, at the same time keeping itself covered in the direction of Elbing and keeping the lower course of the Vistula under surveillance. During this advance, the tanks moved ahead each night, stopping only at dawn for fuel, ammunition, and urgent repairs.

This armored success was due to the fact that the mobile forces had not stopped to wipe out strong points, but had left the task of capturing them to succeeding echelons.

Every success obtained by the tanks was consolidated without delay by the motorized infantry which followed them. While the tanks were engaged in combat, the air forces and infantry, in close liaison, displayed great initiative.

The Germans immediately attempted to break through in order to open a route of retreat beyond the Vistula. Part of the troops of the Russian Second Army Group, whose northern wing was on the sea, faced about toward the east in order to bar this German escape. The rest of the Second Army occupied all the lower course of the River, thus eliminating all possibility of a German drive from the west to break the blockade of East Prussia. Elbing did not fall till 10 February. During the defense, the Germans abandoned many prisoners and much matériel. The only other way of escape was by sea, but the sea, as well as the ports, was dominated by Soviet

naval aviation, which sank several convoys in the Baltic and kept Danzig under surveillance. German evacuations by sea were negligible.

Mopping Up

After having cut off a German retreat toward the west, the Soviets cut the German forces into separate groups and pushed them back into three separate zones. One, the farthest south, was around Heilsberg. Another was around Königsberg. The third was in the Samland sector, with the port of Pillau. There were also German elements resisting in the Frisches Peninsula separating the Frisches Haff from the Baltic. Soviet planes gave particular attention to the bombing of Pillau at the entrance to the Frisches Haff. When this city fell, there were 22 transports and 33 small boats sunk in the port and its approaches.

The Soviet High Command decided not to disperse its forces but to reduce these German groups one at a time. This necessitated a rather complicated regrouping of troops and the successive execution of several independent operations. As before the general offensive of January, advantage was taken of the time required for these troop movements for special training of the troops destined to attack Königsberg.

First, the Heilsberg pocket, south and southwest of Königsberg, was liquidated. It contained 20 German infantry divisions with a great deal of artillery and armor. After the fall of Elbing, the Second Army Group had moved westward to cover the right flank of Marshal Jukov's forces which were advancing on Berlin. Jukov had begun his offensive on 16 January, starting from Warsaw and farther south. He began his attack as soon as the attacks on East Prussia, which guaranteed the security of his own operations, had begun to shape up successfully. Within a week, he advanced 160 miles with his attack elements.

To end German attempts to evacuate by sea, the Third Army Group resumed the offensive along the shore of the Frisches Haff with two groupments. One came from the west, and one from the east. Both were supported by powerful air forces and large armored units. Although the thaw and heavy rainfall had soaked the terrain, the liquidation of the German forces encircled in the Heilsberg pocket was completed on 29 March. From 13-29 March, the Germans lost 130,000 men killed or taken prisoner, 615 tanks, and more than 3,500 guns.

Attack on Königsberg

It took several days to assemble available troops, as well as large quantities of artillery and tanks, around Königsberg. Advantage was taken of this lapse of time to finish the special training of the troops. The generals and their staffs had had time to study the enemy organizations thoroughly. As a result of this preparation, the Third Army Group was completely prepared for its new task. It had at its disposal thousands of guns, many planes, strong armored units, and all the necessary technical weapons. During the days preceding the attack, the artillery and air forces methodically attacked enemy personnel and defensive works.

After taking the outer defenses, the attack was launched on 8 April, following an artillery preparation which lasted 3 hours. During 7 and 8 April, Soviet planes made 10,000 flights over the besieged city. Troops seized possession of all the strong points and cut the garrison in two. The main body of the German forces was concentrated in the eastern part of the city, and it attempted to organize resistance there. But the Russian attack did not stop. Little by little, the circle drew tighter around the German forces. To avoid an inevitable massacre, the commander of the German strong point gave the order for the garrison to capitulate. By 24 April, the German casualties at

Königsberg were 42,000 killed and 92,000 taken prisoner. The Germans lost 2,033 guns and 289 tanks and self-propelled guns.

It is interesting to note that the end of the operations around Königsberg coincided with the encirclement of Berlin, which was completed on 24 April by the armies of Marshal Jukov.

The defenders of the third German pocket in Samland were forced to lay down their arms and surrender the fortified port of Pillau on 25 April. A few German troops still remained on the Frisches Peninsula and continued to resist up to the day of the unconditional surrender of Germany.

Total German losses in dead and prisoners in East Prussia were 470,000 men.

The stubborn defense of East Prussia added to the isolation of the German divisions which were tied up in Kurland by the Soviet forces on the Baltic front. At least 650,000 men, and probably more, were thus prevented from participating in the operations in Germany proper during the last days of the war.

Some Misconceptions of Close Air Support

Digested by the MILITARY REVIEW from an article by P.H.H. Bryan in "The Fighting Forces" (Great Britain) June 1949.

IT WAS not until the real war was properly under way that some of us began to realize how we had been "sold" some of the air-support myths. Although air attack on obvious and visible targets such as convoys on roads and ships at sea was effective, when it came to combat units in the field an entirely different state of affairs resulted.

The most outstanding factor in the problem of air versus ground combat forces is the comparative invisibility of the latter. The 800 or so small component parts of an infantry battalion, when spread piecemeal over a few hundred yards, are quite undetectable. Field guns and tanks, even with a moderate attempt at camouflage and adaptation to natural surroundings, just melt into the landscape. It was, at first, an amazing experience to fly over a battle going on below, and despite knowing the ground and the positions of our own forces, to be unable to see a sign of man, gun, or vehicle.

This difficulty of detecting small objects (a field gun some 10 feet by 5, a tank some 15 by 8) on the ground is not sufficiently appreciated by most people. If they have given thought to it, they think air crews are equipped with some magic method of detection unknown to laymen. However, there are no such magic formulae. The pilot's only detector is his eyesight, and, having flown on several close-support missions, I can say that an experienced infantry or tank man, with his greater knowledge of map reading and "what to look for," will spot small ground targets quicker than the air crew. One has only to accompany a supply-dropping plane, or a message-dropping light aircraft, to realize that it is not always easy to locate a "target" which is not only *not* trying to hide but trying to make itself as conspicuous as possible by laying out ground strips, lighting smoke fires, and having 200 hungry men standing in the open waving their hats. Even with an exact map reference, broad daylight, and ideal flying conditions, failure to locate has not been unknown in the past.

Control

The next problem of close air support is that of "How can the supported party direct the flying supporters on to the in-

visible targets?" In other words, control. The question, of course, presupposes that the supported party himself knows the position of the enemy—which is by no means always the case. However, let it be assumed that a certain amount of flash-spotting has taken place and the enemy position noted accordingly. What information is going to be sent to the planes cruising around at several hundreds of miles per hour up above? A map reference? The futility of bombing and strafing solely on a map reference, apart from cases where there is a prominent mark like a pond, church, or temple (which all sane gunners would avoid, anyway), can be demonstrated on Salisbury Plain any day.

A map reference amplified by verbal description by means of radio-telephone? (All this presupposes an arranged netting and radio procedure with strange air bases hundreds of miles away; an assumption of inter-service cooperation at a pitch not, alas, often attained during World War II.) This method is certainly an improvement, but here again it is essential that there should be in the vicinity features easily recognizable from the air, so that simple verbal guidance may be given from the ground, e.g., "Can you see the stream and river junction on your left side? You've just passed it; now you'll have to look back a trifle. You've got it? Good. The target is 800 yards bearing 120 degrees from this junction. There are half a dozen straggly trees close by—can you spot them?" and so on. However, as often as not in war, the terrain may possess no particular distinguishing features. Let the reader imagine himself overlooking a wide sweep of ground. Let him pick out one hedge a mile away in a maze of hedges; and let him ponder on how he would describe this to a pilot 3,000 feet up.

This brings us to the question of smoke shells being used by the ground party to mark the enemy position. It cannot be too strongly emphasized that smoke must only be used in conjunction with radio-telephone control. In most forms of battle, there will be sundry columns of smoke scattered over the area. A slight breeze soon dissolves an artificial smoke burst into a vague haze. The enemy, far from wringing his hands and saying, "Air support! Alas, we are extinguished!," may even lob a few smoke shells around the landscape as a deception measure. And the sum of all these contingencies may present the pilot with a most bewildering picture, which may result not merely in inaccurate and ineffective bombing but in casualties to his own side. A smoke burst, to be of any value as an indicator, must be identified as such by the pilot at the time of impact. This can only be accomplished by a running commentary on radio-telephone by the ground party, e.g., "Watch for the next one. No, that's a wide. Two more on the way. There's one. There's the other close to it. Did you spot those? Good. Target's about two hundred yards east of them."

It is the nature of close support that the fire of the aircraft is directed upon what appears to the air crews as lifeless and uninhabited landscape. Therefore, unless the ground party being supported has the means to control and direct the air strike, most, if not all, of the fire power will be uselessly frittered away on the surrounding countryside. The "means to control and direct" implies not only radio-telephone communication and smoke indicators but an observation post from which the enemy positions area can be seen—for you cannot tell others what you do not know yourself.

If there is no such rigid control by forward elements on the ground—the fellows getting shot at by the enemy—close-support missions degenerate into mere strafing of "areas" given as map references in the briefing room. The dangers of this method were well demonstrated during World War II by the numerous

Two examples of the results that can be attained by effective air support of ground operations. Above, wreckage caused by infantry, artillery, and airplanes as the Germans retreated before the advance of the Seventh Army near Loriol, France, August 1944. Below, a similar scene along a highway near Montelimar, France, September 1944.—US Army photos.

bombings of our own troops. The wastefulness and ineffectiveness of this method could be discovered by a study of subsequent air-strike photographs and subsequent ground-troop reports. As an example: target area (given as map reference), a position of some 400 yards by 400 yards, in which an enemy of approximately one battalion strength plus a few field guns were contained. Proportion of bombs dropping within target area—one-sixth. Farthest "wides"—1 mile away. Number of enemy casualties, as far as the infantry who eventually took the position discovered—nil or negligible.

The centralization of air power is still the policy of our defense chiefs. A fighter-bomber squadron that has strafed a position in front of X Division in the morning may find itself doing a job 100 miles away in the afternoon in front of Y Division. In the evening, it might be allotted a task in support of a naval action. There has never been any close working between air and ground forces at a company-platoon level, and there has never been any serious training devoted to this end. Despite the plenitude of air liaison staffs, which appear to increase in compound proportion at each stage from brigade upwards, the man up in front with the gun and the muddy boots feels just as personally remote from air matters as he did in 1915.

As a result of some experience with both British and American air forces in close-support roles, one cannot avoid harboring a mild suspicion that air crews do not view with entire favor the idea of their actions being controlled over the target by ground forces below. Perhaps it savors too much of being "pushed around"; and not unnaturally they tend to prefer the clear-cut mission on a definite map reference, their orders being received from superiors of their own service. A form of compromise was arrived at during the last war by the creation of the Rover tentacle—Royal Air Force officers in wireless-equipped jeeps accompanying ground formations. But it was no more than a compromise and often served no more purpose than to constitute another tedious relaying stage through which requests and orders had to pass.

Value of Air Support

The true value of close air support directed against enemy combat units is as a flying artillery of high mobility, capable of being brought into action quicker than road-bound field batteries. On the debit side must be placed the wild inaccuracy of aircraft fire and its colossal cost in manpower, money, and ammunition, compared on a basis of results obtained with the relatively cheap and accurate artillery fire. Squadrons of planes may attempt to bomb a farmhouse all morning and not succeed. The last bomb down may be just as wide as the first one. Field batteries, ranging from a static base, would be almost certain to hit it eventually.

Whereas close air support (if rightly controlled) can convey, to obvious advantage, a form of heavy fire power to the aid of the lightly armed infantry or tank forces, the same advantage is not apparent if it is used in support of a force equipped with heavy and more accurate weapons—such as artillery or a naval vessel.

Nevertheless, the same old exaggerated ideas concerning the effectiveness of close air support still seems to prevail—and in high places, too. Air support, of course, has always had many advantages in the way of publicity. It is noisy, spectacular, and it has great photographic possibilities. Any dead-weight passenger (the writer was one) and scores of war correspondents could with comfort accompany a close-support mission during the war, and an hour later be back in the security of the mess ready to give the news to the world. No dead-weight passenger or war correspondent ever accompanied the infantry

assault sections, who 2 days later would be worming their way on their stomachs up a boggy ditch under intense fire towards an enemy machine gunner who, having had no recent access to the press, did not realize that he was "knocked out."

It does not augur well for future operations if a lack of appreciation of the real capabilities of close air support persists. Our standard of air-ground cooperation has indeed probably fallen to a level lower than that existing in 1945. During the later war years, there were at least a few "private armies" with their own "private air force" who were able to bring control of air support to a fine pitch. But these formations, being war-established only, have long since been disbanded.

Conclusions

The best person to control close air support is the foremost officer on the ground. If we are to reap the full benefit of this supporting weapon and if we wish to avoid a repetition of the wasted efforts of the last war, all combatant army officers must be trained to control, by radio-telephone and smoke, an air strike. This calls for no elaborate program or equipment. Once a man has "talked" an aircraft around two or three times (say 15 minutes) the knowledge and the confidence are with him always. No super-wireless apparatus is required. Small infantry man-pack sets with a range of some 20 miles have proved quite effective, as there is no need to open up communication until the sound of the aircraft is heard.

There will need to be a standardization, on a mutual basis, of aircraft and ground wireless set netting ranges; and, most of all, a standardized wireless procedure. The ideal should be that every platoon or troop commander will be, in effect, a potential air-strike controller. Then, the close air-support weapon might develop into a pointed rapier instead of being a recklessly wielded club.

The Army in Civil Defense

Digested by the MILITARY REVIEW from an article by Lieutenant Colonel L.H.O. Pugh in "The Army Quarterly" (Great Britain) April 1949.

RECENTLY the British Minister of Defense stated in Parliament that, to the extent that any military offensive operations would permit, the Army would provide mobile columns, drawn from field formations stationed in this country, as a reserve to the Civil Defense Services.

This statement raises many controversial points. Clarity of thought is necessary to place the Army's task of providing assistance to the Civil Defense Services in its correct perspective.

The role of the field army in war is to fight, either in this country to repel and destroy invaders, or overseas. For these tasks, it must be trained. This raises the question as to the extent to which the demands of civil defense may be allowed to interfere with its training. Further, at what stage are field army formations to be committed in their reserve capacity to assist the Civil Defense Services? The relation of the operational role of field army formations to their civil defense responsibilities must be determined.

In the opening stages of the next war, the nation will be faced with the winning of the air battle over this country. On its successful conclusion will depend the continued existence of the nation's life. It will be a "fight for survival" and will demand the maximum effort from all avail-

able resources. In this case, there is no question that for the Army the task of assisting the Civil Defense Services will take priority over all except that of repelling invasion.

This stage having been overcome successfully, more "normal" conditions will prevail. Appreciation of the local factors alone will now determine the stage at which the mobile reserve provided by the Army should be deployed in support of the Civil Defense Services. It is fundamental that the latter are responsible for carrying out civil defense measures themselves. Hence, in its capacity as a reserve, the Army should only be deployed when the situation is in danger of getting out of control of the local civil defense authorities or, due to a major disaster, is already beyond their control. The danger lies in calling in the Army too soon and too often. A reserve should not be committed until the situation demands it. The Civil Defense Services should regard assistance from the Army in this light and demand it only when imperative.

In direct conflict with this principle is the obvious advantage of using the Army at an early stage and thus bringing about the restoration of the local situation sooner than would occur were the civil defense organization to rely solely on its own efforts. In the opinion of the public, delay in calling in the Army will appear inexcusable. It will be bad for morale, and restoration of public morale is of primary importance. A further consideration is that the early use of field formations will make it possible to release them earlier.

These factors have to be considered in relation to the operational role of the field army and its training requirements. The decision as to when the situation in a target area demands the deployment of a field army formation in its capacity as a reserve to the local Civil Defense Services, and from where this field army formation is to be drawn, must be made at a high level. It will be a joint decision made by the superior military and civil defense commanders.

The amount of assistance which the Army can provide for civil defense must be considered if this problem is to be seen in its correct proportions. The basic unit to be used is the brigade group, and more than one will undoubtedly be required in any particular situation. Of the total number of men and vehicles available, a proportion will be required for the administration of the troops themselves. Civil defense tasks are expensive in men. The total effort of a brigade group will be swallowed up with little to show in any town.

The greatest attribute of a military formation is that it is an organized body and has the communications to exercise control. It is a cardinal principle that soldiers should be concentrated under their own commanders and not dispersed in "penny packets." This holds true in civil defense as much as in any military operation. The opportunities for dispersion are, however, greater.

Training

The training of the soldier is, in general, directed towards making him proficient in battle. This requires a long and involved period of training, leaving little time for any additional training in civil defense. The tasks he may be called upon to perform in civil defense should therefore be related to what is taught in his military training. Many of these will be carried out under the direction of the police, civil defense officials, and civilian technical experts. They will be such tasks as the reconnaissance of "blitzed" areas, the clearance of debris from essential communications routes, elementary rescue, the rendering of first aid and immediate medical treatment to casualties, assisting the police in controlling refugees, assisting in the distribution of food and water, and

(in the event of complete loss of control by the civil authorities due to a major disaster) assuming temporary control of the area until the arrival of civil replacements.

These are all tasks covered by the normal military training of the soldier. They are of a non-technical nature and to perform them will require no additional subjects to be taught to the individual soldier. Practice in these tasks will of course be required and so additional training will have to be given to officers and junior leaders.

In the case of these last, the position is different. Commanders will be required to plan and operate in conjunction with the civil defense authorities. In certain cases, they will have to take command of all resources, civil and military, to restore the situation. Junior officers and NCOs will carry out these plans, so they will require training. Civil defense must therefore take its place in the curriculum of training of the Army. The "doctrine" must be disseminated at the school responsible. Tactical exercises without troops must be held in formations and units, and combined civil and military exercises must be carried out. This subject should be included in the normal training of the soldier to the extent desirable in relation to his rank.

Conclusions

The contribution of the Army will be small. It must be applied to the best advantage. Each area likely to be selected by the enemy for an attack will contain one or more targets of industrial or communications importance which are vital to the national economy and prosecution of the war effort. These will demand prior treatment. Their restoration in working order will be essential. Such effort as may be available must be concentrated upon these even at the expense of more humanitarian tasks. Plans should be made jointly by the military and civil authorities to this end.

The implications arising from the decision that field army formations in this country will act as a component of the national civil defense organization are many. They include such controversial matters as command, the responsibility for planning, the allocation of troops, the holding of exercises with the local civil defense authorities, and, most important of all, the production of a doctrine of civil defense.

The Eben Emael Operation

Translated and digested by the MILITARY REVIEW from an article by H.R. Kurz in "Allgemeine Schweizerische Militarzeitschrift" (Switzerland) May-June 1949.

BECAUSE of the nature of the terrain, the Albert Canal formed a strong covering position, and it should have provided considerable protection for the Belgian main line of defense in the early days of World War II.

In the Albert Line, its southern anchor, Fortress Eben Emael, was the strongest fortified work. Its mission was to block the passages over the Meuse River and the Albert Canal at Vise and Maastricht. In the frontier section of the Dutch enclave of Maastricht, the Meuse forms the boundary between Belgium and Holland. The Dutch had established no installations for the defense of this strip of territory, and consequently there were no outlying frontier positions. The artillery of the fortifications was to take their place.

The Fortress was able to cover the

bridges at Vise, Lanaye, Canne, Vroenhoven, and Veldwezelt with its artillery fire, thus dominating all the routes entering Belgium in its sector. For this reason, Fortress Eben Emael became the key point of the gateway to the most important east-west invasion route into Belgium.

Eben Emael had been built between 1933 and 1935, patterned after the great works of the Maginot Line. In its construction, advantage had been taken of the cut of the Albert Canal through a line of hills some 1,300 meters in breadth. The Fortress had been blasted out of natural rock, and the natural form of the hills was not altered by the construction work. Eben Emael was, therefore, a fortified work of unique form, giving evidence of neither large concrete structures nor exposed masonry. Its underground works covered about 160 acres.

On the east, the fortifications were protected by the Albert Canal. On the north, there was a moat which could be flooded with water from the Geer River, which flowed farther to the north. On the west and south, there were dry antitank ditches reinforced by antitank walls and infantry obstacles. From the top of the line of hills, the area far beyond the Meuse could be observed. All underground installations—gun rooms, quarters, and ammunition and supply stores—were connected by galleries which were designed to make the fortification self-sufficient. It was firmly believed that Eben Emael would be able to resist for a long time.

In conformity with its mission, the armament of the fortification was mainly artillery. The largest armored turret contained 2 120-mm guns with a range of 16 kilometers; two other turrets were armed each with 2 75-mm guns with a range of 12 kilometers. Four casemates had three guns each built into them, two pointing northward and two southward. To the north and south of the fortification were bunkers, each equipped with 3 double machine guns.

In addition, 6 antiaircraft machine guns in field positions were located on the upper surface of the fortification. Three dummy gun turrets on the upper surface of the fort were designed to fool an attacker into believing that additional guns existed. With the exception of two light machine guns, there were no infantry weapons on the upper surface of the fortification. An isolated bunker south of the Fortress, but connected with it by an underground passage, was armed with a 60-mm antitank gun. Outer flanking protection for Fortress Eben Emael was provided by six smaller bunkers and two dugouts (north and south), with a total armament of 11 60-mm antitank guns, 16 double machine guns, and 4 light machine guns. Additional light machine guns were available in the interior of the fortifications. Altogether, the armament of Fortress Eben Emael included 2 120-mm guns, 16 75-mm guns, 12 60-mm guns, 25 double machine guns, 6 antiaircraft guns, and 12 light machine guns.

The military strength of the Fortress garrison was as follows:

	Officers	NCOs	Men	Total
Headquarters	12	40	157	209
1st Battery:				
Cupolas and Casemates	8	28	434	470
2nd Battery:				
Infantry Weapons	4	34	468	506
Totals	24	102	1059	1185

Some of these men, mainly the specialists, were quartered outside the Fortress.

The German Attack

Early on 10 May 1940, the German Army attacked westward in several widely separated operations. The point of main effort could not, at first, be determined. Attacks were made simultaneously on France, Holland, Belgium, and Luxemburg.

The initial attack on Belgium was the Eben Emael operation. The object of this operation was to break open the gateway

into Belgium in a few hours and to make it possible for the German forces to advance along the direct line from Aachen to Brussels. Two things were necessary before this could be done. Fortress Eben Emael, which dominated the crossings over the Meuse and the Albert Canal, had to be wiped out and the bridges over the two waterways north of the Fortress had to be seized before the Belgium defenders could blow them up.

Only a few hours after the opening of hostilities, Fortress Eben Emael was captured. The *Wehrmacht* communique of 11 May tells how it was done.

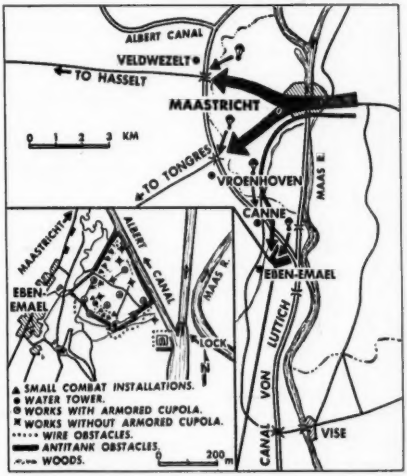
The attack on Fortress Eben Emael was conducted in two phases: an attack from the air, and a drive by ground forces over the two water barriers east of the Fortress.

The air action was a surprise attack in the early hours of 10 May. It was still dark at 0400 when several waves of German planes passed over the Albert Canal and then turned back towards the east. Barely discernible in the darkness, 14 gliders were detached from the planes and landed accurately on the upper surface of the Fortress.

The Belgian sentries followed the descent of the gliders as far as they were able without sounding an alarm. Such an attack was beyond their experience. Immediately on landing, as many as 10 German combat engineers poured from each glider. The men were heavily armed with close combat weapons and equipped with the most modern combat engineer equipment, particularly great quantities of explosives.

The Germans, troops of the 1st Paratroop Regiment, sprang to their tasks without hesitation. In a few moments, the antiaircraft crews stationed on the upper surface of the Fortress had been overpowered and cut down. At the same time, the bunkers which served as outer defenses were knocked out by concentrated charges set off in their firing embrasures. The attackers then seized the gun cupolas, observation towers, and fire-direction installations located on the upper surfaces of the Fortress and began their destruction.

First, the large armored turret with its 2 120-mm guns, and then the remaining turrets of the guns aimed toward Maastricht, were destroyed by high explosives. The explosives were new, hollow charges, now successfully used for the first time against the armored turrets of Eben Emael. Gun tubes were blown up or otherwise rendered incapable of action. In the



same manner, gun rooms and ventilation installations were broken into, ammunition lifts were blocked, and the entrance into the interior of the Fortress opened in various places.

These demolitions, planned to the last detail by the attacker, required only a few moments. When the Belgian defenders recovered from the shock of the attacks and sounded the alarm, it was already too late. The decisive first 10 minutes of every air-landed operation had passed. The attackers had seized possession of the upper surface of the Fortress and were

firmly entrenched there. They had blinded the fortification by destroying its observation installations and had rendered it incapable of action by knocking out its guns.

A few minutes after the gliders had landed, a long and heavy bombing attack was conducted on the area around the fortification. *Stuka* divebombers, dropping 500-kilogram bombs, were employed. The purpose of this attack was to prevent an eventual counterattack. The *Stuka* attack increased the general confusion; thereby succeeding in its mission. Immediately after the bombing attack, the besiegers were reinforced by a strong detachment of paratroops who also landed on the upper surface of the Fortress. As a result of this reinforcement, the strength of the attackers was increased to about 300 men by daybreak. Uncertainty and confusion were increased still further by the use of dummy paratroops which were dropped over a wide area around the Fortress.

The Belgians attempted as best they could, and with the limited means at their disposal, to defend themselves from this entirely unexpected form of attack. One of the first defense measures of the Fortress consisted in requesting the neighboring Pontisse and Barchon Fortresses to lay down their artillery fire on the upper surface of the fortification. An artillery counterattack was also to be made by a field artillery battalion of the I Belgian Army Corps, to which the Fortress Eben Emael was subordinated. It was soon necessary to abandon both of these relief operations, however, since the Germans immediately attacked the other Fortresses with *Stukas*. They put the Pontisse and Barchon fortifications out of action immediately and cut the field artillery to pieces while it was still on the march.

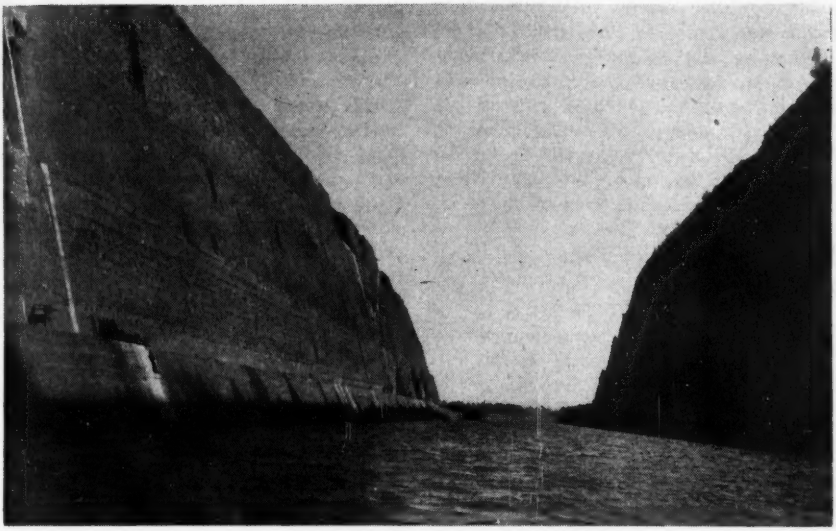
Infantry counterattacks were attempted by a detachment of the 1st Grenadier Regiment which was stationed north of Eben Emael. These operations failed, however, due to liaison deficiencies and to the continued *Stuka* bombing attacks. The 7th Infantry Division, located on the Albert Canal, was short of reserves, and since misunderstandings occurred in the transmission of orders, the counterattacks were soon stopped. The points of the German tank columns had by now pushed across the bridges at Vroenhoven and Veldwezelt, and the advance of the reinforcing Mikosch detachments, approaching from Maastricht, made the presence of these counterattacking troops appear to be of more importance elsewhere. Several attempts on the part of the garrison to break their way out were similarly unsuccessful. Since the defending garrison was neither trained in infantry fighting nor had the necessary equipment, these attempts soon had to be discontinued. Efforts were limited to attempting to keep the Germans from penetrating into the interior of the Fortress.

The German attackers remained on the Fortress all the day of 10 May and the following night, but in the forenoon of 11 May, the Combat Engineer Battalion, attacking by land, succeeded in establishing contact with the German airborne troops.

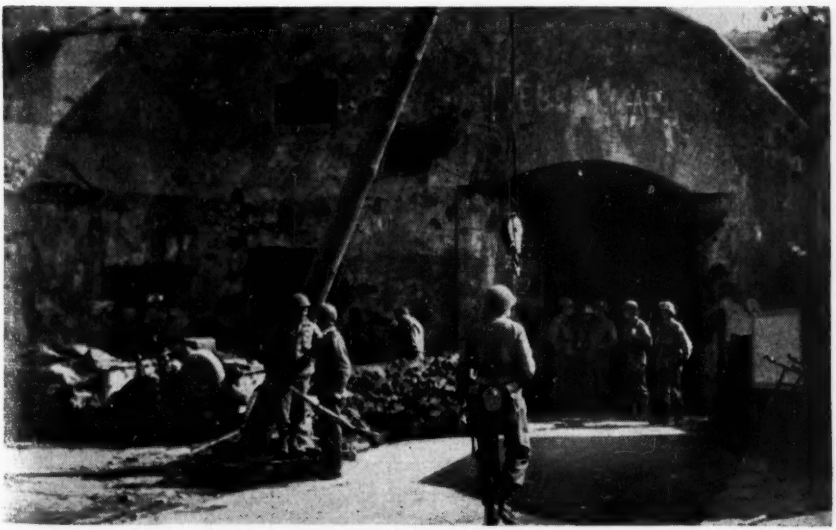
The Ground Attack

The ground attack of the Mikosch Battalion was the second part of the plan for the capture of Fortress Eben Emael. This battalion, which consisted of four companies of combat engineers and two companies of infantry, was equipped with heavy infantry weapons and antiaircraft guns. It crossed the German-Dutch frontier on the morning of 10 May, east of Maastricht, and was supposed to establish contact during the day of 11 May with the air-landed troops on the Fortress.

The Battalion reached Maastricht almost without fighting, but the two bridges there were not usable as the Dutch had been able to blow them up. Only one pier of the main bridge had gone down, however, and the bridges were soon usable



Fortress Eben Emael dominated all the routes leading into Belgium in the Maastricht area, and its swift capture by the Germans in 1940 attracted worldwide attention. Above, the part of the Fortress facing the Albert Canal. Below, an entrance to Eben Emael is inspected by US troops after its re-capture in 1944.—US Army photos.



again. Because of this, the Mikosch Battalion was forced to cross the Meuse on pneumatic rafts. It suffered heavy losses due to the fact that one of the guns in a casemate in the northern part of the Fortress was able to lay its fire down on the river. This resistance was broken up by the use of antitank guns firing direct fire against the embrasures of the casemate.

The Mikosch Battalion fought its way ahead against scattered resistance on the west side of the Meuse as far as the bridge over the Albert Canal at Canne, which the Belgians had succeeded in blowing up. Since the canal lay under fire from a few of the works of the Eben Emael Fortress and from troops of the 2d Grenadier Regiment, the advanced elements of the Mikosch combat group did not succeed in crossing over to the west bank of the canal until late evening and during the night. This crossing was effected 800 meters south of Canne, under the protection of the antitank and antiaircraft weapons of the combat group.

At Canne, the battalion joined the paratroops who had been dropped early in the morning with the mission of seizing the bridge, but who had not been able to accomplish their mission. Here, the attackers faced a new obstacle: the moat north of the fortification had been flooded with water from the Geer. A detachment of 50 volunteers undertook to cross this water obstacle during the night with the help of pneumatic rafts and to attack the Fortress from the north. This detachment succeeded in working its way to the firing embrasures of the outer defenses that were still capable of action and in blowing up embrasure after embrasure with concentrated charges. The Mikosch Detachment followed through the dead area thus created. Early on 11 May, a junction with the air-landed forces on the upper surface of the Fortress was made, and the work of destruction was completed by their combined efforts.

The Surrender

The situation in the Eben Emael fortification became more and more desperate during the morning of 11 May. Hardly one of its external weapons was capable of action any longer, and those that remained were under the direct fire of the German antitank and antiaircraft guns. The attackers pushed through the breaches which they had created into the interior of the fortification and fought their way forward with explosive charges, machine pistols, and flame throwers. To make matters worse, the electric current in the fortification failed, and the Fortress lay in darkness. Sixty men of the garrison were dead, 40 severely wounded, and the survivors were badly shaken by the continuous and heavy detonations of the explosive charges. They were disheartened by their inability to offer any resistance to the German advance. At 1230, after a 32-hour fight, the fortress commandant discontinued the useless resistance and hoisted the white flag.

The psychological effect upon the whole world of the unexpectedly quick fall of the Eben Emael Fortress was very great and almost as important as the purely military success.

The fall of Eben Emael was primarily a surprise victory. Since the Fortress could hardly have been taken within the necessary time limit with ordinary means, the German High Command thought of something unusual. The plan was indicated by the two weak points in the organization of the Fortress: its incapacity to defend at night, and its vulnerability to an encirclement from the air. Both of these weaknesses were known to the Germans.

Gliders as carriers of military personnel and as a means of transporting heavy engineer matériel did not make their entry into the history of war until 10 May 1940. Surprise was increased by the *coup*

de main nature of the attack, and by the lack of preparedness on the part of the Belgians. The employment of heavy hollow charges by the Germans was also a technical innovation whose explosive effects on the armored turrets of the Fortress reached a hitherto unheard-of intensity. Last but not least, the attacker was aided by the prevailing belief of the Western Powers in the impregnability of concrete. This belief frequently led the Western Allies to minimize the use of mobile outer defenses for their fortifications and to await the enemy attack behind protecting walls and armored cupolas. This attitude favored the combat technique of the Germans, who counted on the employment of astonishingly small forces.

The German success at Eben Emael was not due entirely to surprise. To an equal degree, it was the result of highly spirited action by all participating personnel, of painstaking planning and preparation, and close cooperation of all the units employed. It is known today that the Germans possessed the exact plans of the fortification. In the autumn of 1939, they had built a model of the Fortress on the troop training terrain of Grafenwohr.

Later, at Hildesheim, an accurate model of Eben Emael was constructed in preparation for the attack. How thoroughly the Germans were acquainted with all the details of the fortification is shown by the fact that in their attack they passed up all the dummy armored cupolas. The Eben Emael operation shows that the attack of fortifications must begin in time of peace. The Germans had a decisive lead in this respect.

Naturally, many wild rumors soon arose concerning the taking of Eben Emael. The employment of a gas which paralyzed the garrison, a subterranean passage under the Albert Canal which was supposed to have been used by the attackers, and even treason on the part of the garrison, were all mentioned. German propaganda welcomed these rumors. The rumors were still further reinforced by allusions to the new methods of attack contained in the *Wehrmacht* communique of 11 May. These have been refuted conclusively, however, by the investigations which the Belgians conducted at the end of the War.

Summary

The fight for Eben Emael shows the effects of surprise in war on all echelons. Strategically, the Eben Emael operation diverted the Allies as long as possible from the intended direction of main effort and drew them into the Belgian area where they would be surrounded. Tactically, a new method of combat was employed in connection with an unexpected direction and time of attack. Technically, the use of several theretofore unknown combat means placed the defender in a situation in which he was unable to win with the means he had at his disposal. These tactical and technical innovations, introduced on the battle fields of Belgium and Holland, represent the beginning of a new era in which combat includes use of the air. Even today, the possibilities arising from this can scarcely be estimated. We are standing at the threshold of developments that will bring about revolutionary changes. Let us learn this one lesson from the events at Eben Emael: that only ceaseless, spiritual, and material preparedness to meet the most unusual conditions can offer any prospect of success.

The Air Situation in a Joint Estimate

Digested by the MILITARY REVIEW from an article by Wing Commander J. R. Gordon Finlayson in the "Journal of the Royal United Service Institution" (Great Britain) August 1949.

IF YOU have ever struggled with a joint estimate for a theater commander, you will have noted how the sailor in the joint planning team will compare the naval strengths of friend and foe and will arrive at a reasonable estimate as to whether we can or cannot expect to succeed in the operation we have in view. You will also notice how the soldier will estimate the rate of build-up of the enemy in terms of divisions and compare it with the practicable rate of build-up we can achieve. From this, he will be able to give you a reasonably satisfactory answer as to whether the operation will succeed or not. But what sort of estimate do you get from the airman? He may well state, "I can only say that I *think* and *feel* the air situation will be all right."

The relative fighting power of ships of similar classes, or divisions of various types, can be taken as approximately the same for both friend and foe. Within reason, therefore, if you can put more units to sea or into the field than the enemy, all can be expected to go in your favor. In fact, the tactical potentialities of these more or less self-sufficient naval or army units can be assessed within fairly well-defined limits and are taken for granted.

In the case of air forces, all the air forces in the theater must be considered as a single fighting unit. This is because the range, flexibility, and functions of the various types of aircraft are such that all the air forces can and must support each other in the air battle. The particular air situation at a particular point will depend not so much upon the movement of air forces to within fighting range, for they will for the most part be within fighting range already, but rather upon the tactical ruses employed in air warfare to keep the enemy's air forces away from the area we propose to occupy with our land forces.

In fact, what appears through the sailors' and soldiers' eyes to be a strategic problem is to the airman a tactical problem. Therefore, in estimating the air situation for the theater commander, the tactical manner in which the air forces are used assumes a far greater importance than any bare comparison of the strengths of friend and foe.

The Air Estimate

How should the airman go about his estimate of the air situation? Even though he cannot base his calculations on a comparison of numbers of units by types in conformity with the naval and army assessments by ships and divisions, he must give some shape to the general problem of gaining air superiority at the required place and time to cover and support the proposed surface operations. Certainly, if the theater commander happens to be a sailor or soldier, he will want a clear picture presented to him.

At this point, the airman must refer to his aim. What is it? It depends upon the type of operation. Let us assume that the joint aim of all the forces in the theater in pursuance of our theater strategy is to make a landing across the sea on the enemy shore. The aim of the airman, in common with the sailor and soldier, will be to secure the bridgehead, and he must make the best contribution of which he is capable with his tactical and striking air forces. The airman's method will be twofold: to gain and maintain air superiority over the proposed bridgehead, and, thereafter, to provide the maximum direct and

indirect support with all air forces which can be deflected from the air battle without prejudice to it.

The airman's task of gaining air superiority will take time, perhaps a day or two if the enemy air forces are already well whipped, or perhaps several weeks or months, or even years, if geography and other factors weigh heavily against us. It always takes time to fight and win, or at any rate gain a substantial ascendancy. Let us isolate the airman's main task of gaining and maintaining air superiority. What are the mental processes through which he must go to estimate the air situation as it is likely to be after a considerable air battle and by the time the Navy and Army are able to set forth on the "occupation" phase of the strategic design?

The airman will review the factors affecting the air situation. These will include the geographical situation; a comparison of air forces by numbers, types, and performances; the availability of airfields; the defensive organization and its effectiveness particularly in the assault area; the enemy's striking capacity; his reserves in aircraft and aircrews; his supplies of fuel and ammunition; his morale. But the main argument in assessing the air situation at a particular time and place will revolve round the tactical employment of the air forces. He therefore assembles the intelligence available about the enemy air forces and assesses their effort. This may, perhaps, be most realistically presented in terms of sorties per day against specific points, giving a "best" and a "worst" case.

The enemy will certainly react strongly against our assault landing and he will endeavor to concentrate his air power against it. We must know what sort of effort this may be. If our fighters must operate at long range and the enemy can operate at short range, then he will clearly have a corresponding advantage over us. Moreover, since we must protect the assault operations, we must keep constant cover over them while the enemy may choose to concentrate his effort in time and produce his maximum strength over the assault area at the same time. Even a superiority of a few minutes duration might allow a fatal atomic aircraft to get through!

Therefore, until we can establish our fighters and air defense organization ashore, we will be at a disadvantage in the air. Accordingly, we must take steps to reduce the potential enemy air effort to a scale with which we can cope during those critical days between the time when he discovers our assault area until we have established our air defenses ashore. This is a condition of the successful attainment of our aim.

Bearing in mind that during the assault the Army will be very lightly equipped with supporting weapons, it is also clear that we must attempt to reduce the enemy air potential before we embark upon the surface operations. The enemy air potential must be reduced to a point which will permit the air forces to devote the maximum possible air support to the land forces during the critical operations in the assault phase.

Bomber Forces

The main weapon with which we can reduce the enemy air potential and gain air superiority will be the bomber forces. We will also make use of all aircraft whose range will allow them to make an effective contribution in their appointed roles. In order to make an assessment of the probable air situation comparable to that of his naval and army colleagues, the airman must estimate the results which may be achieved by these operations. The complications of making even the vaguest mathematical estimate are shown when we consider the methods by which air forces may be able to reduce the effective air

potential of the enemy. Some of the main methods of destroying enemy air potential are as follows:

1. Attack the enemy's aircraft industry. This may be too long-term a policy for the theater air forces, and will probably be in any case a high priority objective of our centrally based strategic air forces.

2. Attack the enemy's aircraft in their depots and at airfields.

3. Attack the enemy's aircraft in the air:

a. by intruder attacks around enemy airfields at night.

b. by inveigling the enemy to attack our strongly escorted bomber raids by day.

c. by destroying his aircraft when they attempt to attack our own vulnerable targets.

4. Attack the enemy's airfields, runways, and installations.

5. Attack the enemy communication systems along which his aviation fuel, stores, and ammunition must be brought up to his tactical airfields.

6. Attack the enemy's radar and fighter control stations, thereby disrupting his early warning and air defense system.

These are some of the main examples of targets whose destruction will contribute to the neutralization of the enemy's air effort. The effectiveness of these attacks depends upon the inevitably fluctuating course of the air war. However, we cannot expect to bring about a sufficient reduction of enemy air potential by sheer destruction only. Perhaps the greater contribution can be made by the diversion of enemy air effort from the vital area in which we are interested.

There are a number of ruses which may be used against the enemy, and, as might be expected, they are all derived from the Principles of War. The antithesis of Maintaining the Aim is to lose sight of the aim. Therefore, we must see that the enemy is deflected from his aim or is unable to formulate more than a generally defensive aim. The antithesis of Concentration is dispersion and, therefore, we must force this upon him.

Diverting the Enemy

The following are some of the methods which may be adopted to divert the enemy's air forces:

1. Attacking vital enemy centers which he cannot afford to leave undefended, thereby forcing him to divert day and night fighters to their defense.

2. Attacking his fighter airfields within range of the assault area with a view to driving his fighters and tactical aircraft out of range.

3. Attacking the enemy troops on the ground and thereby producing a demand for fighter cover, which will divert this effort from offensive tasks. This may also upset the cooperation between the enemy air and land forces.

4. Threatening him with air and surface forces in such a way as to cause him to divert air effort against points where we can deal with it or to hold air forces locked up in reserve for defensive tasks, and generally deflecting him from his aim.

There are also a number of other tactical ruses which can be used against the enemy air forces to harass them, including the increasingly important and effective technique of radio and radar jamming.

The common denominator in the above operations is the "offensive," whether with the aim of physical destruction or of diverting the enemy effort and attention. In the latter case, which is perhaps the most important sphere of tactical air warfare, there is the fullest scope for the scientific application of the Principles of War—observing them meticulously on our side and forcing the enemy to neglect them in every possible way. This is where the skill and experience of the air commander will be tested to the utmost. He will see that the real key to success in the air war is to maintain the initiative. This can only

be done by the steadfast and relentless maintenance of the offensive.

What is meant by this vicious circle of events can perhaps best be illustrated by taking the following simplified example of such a sequence, the one event leading with inexorable logic to the other:

1. We attack the enemy's airfields and force him to defend them, thereby pinning down a proportion of his fighter force.

2. These fighters are lost to his offensive—for instance, as escorts to his day bombers. In the extreme case, a proportion of his bombers may even be grounded.

3. We find more enemy aircraft targets to hit during our attacks against his airfields.

4. We may hope to diminish the enemy's offensive potential.

5. We will be able to thin out our own air defenses.

6. We will be able to strengthen our offensive, for instance, by providing stronger escorts to our day bomber formations.

7. We will be able to increase the rate of attrition against the enemy fighters as they attempt to defend their territory, and we will lose fewer of our bombers.

This goes on with the advantage multiplying rapidly in favor of the air force which steadfastly maintains the offensive.

Summary

In the face of all the complexities of the continuous war in the air and the knowledge that the air situation in one particular place is intimately linked to the course of the air war in all theaters, the theater airman planner is indeed in an unenviable predicament when he is pressed for factual estimates of the air situation. Perhaps he will be less subject to the suspicion that he is hiding behind the dictums of the great or reluctant to make a detailed estimate if he is able to explain to his naval and military colleagues some of the complications of his problem. An explanation on the lines set out here should at least convince them that any mathematical comparison of the air forces of friend and foe as a measure of their respective fighting value will be worse than useless, and may be dangerously misleading.

In the long run, the only valid judge of the many factors affecting the tactical air battle, however analytically assembled in our appreciation, will be the eye of experience.

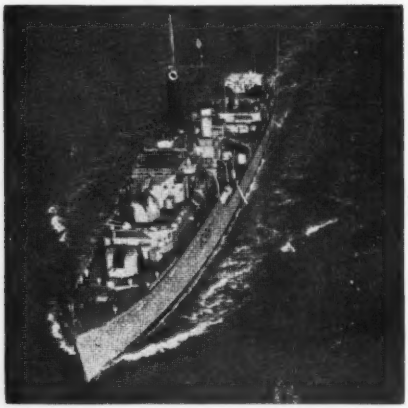
The Fast Submarine

Digested by the MILITARY REVIEW from an article by Ian Bremner in "The Navy" (Great Britain) August 1949.

ONE of the major problems facing the navies of the world today is that of the fast submarine. It has received a good deal of publicity in recent months, some well and some less well informed. Speeds of 20 or even 25 knots have been claimed for existing submarines. These were denied by the First Lord of the Admiralty when he stated that as far as he knew, no submarine in existence was capable of an underwater speed of 20 knots. These reports probably originated from German claims to have designed a U-boat, driven by hydrogen-peroxide, which could do 25 knots under water. There is no evidence, however, that the experimental models, which were all that they produced, were capable of anything approaching this speed. The German Mark XXI U-boat was capable of a submerged speed of at least

15 knots for short periods, as compared with the 7 to 9 knots that was the normal.

The "fast" submarine was developed by the Germans during the war, and was the next to last stage on their side in the battle of science and wits that went on throughout the war between German submarine designers and British scientists designing antisubmarine equipment. The last stage of all was the production of the hydrogen-peroxide driven U-boat, which would have been more or less independent of the atmosphere and for which



Combating fast submarines is a major naval task. HMS *Crossbow* is ideal for this work.

the Germans claimed a submerged speed of 25 knots. This latter type had not got beyond the experimental stage at the end of the war. The Mark XXI was in full production, but because of the hurriedness with which the design had been prepared, no U-boat of this type ever made an operational patrol.

German Mark XXI

There was no revolutionary new principle involved in the design of the Mark XXI U-boats. They achieved their high speed by having a large battery capacity, giving them extra power when submerged, and by complete streamlining of the hull. The Germans were assisted in this by their use of the *schnorkel* which made it unnecessary for U-boats to surface completely to recharge their batteries, and meant that the hull could be designed without good surface sea-keeping qualities. British submarine crews, experimenting with U-boats of this type after the war, found that in rough weather the only way to remain on the surface was to batten everything down and run with the *schnorkel* up.

The Mark XXI U-boat had a number of other unusual features. Its pressure hull was shaped like a figure eight instead of being round, in order to accommodate economically the large battery capacity. It also made extensive use of hydraulic telemotor controls. These were already in use in British submarines, quite satisfactorily. But owing to the speed with which the Germans developed them, they gave a lot of trouble and were one of the main reasons for no Mark XXI U-boats being operational by the end of the war.

Both the Royal Navy and the United States Navy now have fast submarines, of a type basically similar to the Mark XXI. All have been converted from existing submarines by streamlining them and fitting on a *schnorkel*. The first British streamlined submarines appeared as early as 1944, when it was known that the Germans were producing U-boats of this sort and that countermeasures would have to be developed. Most of them are conversions from the medium-sized "S" class, though one of the larger "T" class appears to have been similarly converted. The work involved includes the removal of guns and guard rails, and the fairing off of the conning tower and hull casing.

At a press conference recently, the First Sea Lord suggested that the speed of British fast submarines might be about 16 or 17 knots. Comparing this with the Mark XXI, it seems probable that the

battery capacity has been increased, presumably at the expense of the torpedo armament. In addition to converting existing submarines, the US Navy is building four new large vessels with streamlined hulls. Having been designed as fast submarines, these are likely to give better performance.

Russian Developments

Some of the modern Russian submarines which have been mentioned in Parliament and the press are likely to be of the Mark XXI type. The Baltic ports where many of these were being assembled are now in the Russian Zone of Germany, and unfinished vessels are certain to have been completed. What is more doubtful is whether the Russians have been able to effect the alterations necessary to make them really useful operationally. They have had the help of German scientists and technicians, but they themselves have no great submarine experience.

Antisubmarine Tactics

Nothing has been published, naturally, of the revision of antisubmarine tactics in England caused by these developments. Many submarines were sunk by aircraft during the war when on the surface, but the danger to submarines from aircraft has largely been removed by the *schnorkel*, since there is now no need for them to show more than the head of the *schnorkel* above the surface. At low speeds, this leaves little wake and is, therefore, very hard to see by eye from the air. In anything but a flat calm, it will give a radar echo less than that of a wave and will therefore be difficult, if not impossible, to detect by radar. Another difficulty for the

Major world powers are developing fast submarines. The USS *Corporal* is a fleet-type submarine which has been streamlined to increase its underwater speed.—US Navy photo.

aircraft is introduced by the fitting of radar to submarines. A radar aerial on the *schnorkel* head would certainly detect an aircraft before the aircraft did the *schnorkel*, and in fact an aircraft is so good a radar target that this might equally be the case with the submarine on the surface.

The *schnorkel* does not have such a serious effect on the tactics used by ships, which can use Asdics to detect the submarine under water. But here the high speed of the modern submarine means that wartime methods of attack will have to be revised. During the war, attacking ships would circle a U-boat, making a run across it for each attack. Even with a 15-knots submarine, this will no longer be possible for a frigate with a top speed of some 20 knots, and it may not even be practicable for a destroyer. Tactics and weapons alike are due for complete revision. The fact that the Admiralty is tackling this is shown by the announcement that a new antisubmarine weapon has been developed and is to undergo sea trials soon.

The greatest need at present is for a force of fast antisubmarine vessels, and the two destroyers which the Admiralty are converting into fast frigates are to be the prototypes of a larger conversion program. Three antisubmarine vessels of a new type are also to be built in Canada, and it is hoped to include a new antisubmarine vessel in the 1949-1950 naval budget. It would be far more satisfactory if a force of antisubmarine vessels could be built up without depleting our reserves of destroyers, but if a choice has to be made there is no doubt that it is fast frigates that we need most.

Even with fast vessels such as these, tactics will probably have to be revised. The feature of the fast submarine that offers most hope to the attacking forces is its short endurance. The Mark XXI can maintain 15 knots for an hour. The hydrogen-peroxide submarines of the future will probably have greater range and speed, but it is likely that a fast surface vessel will always be able to wear down the submarine, if only it can remain in contact with it. This is a much easier problem than attacking it while at speed. The submarine will then be forced in time to slow down, and the problem becomes one with which the Navy is already familiar.

The announcements of the development of a new antisubmarine weapon and the designing of a new antisubmarine vessel show that the Admiralty is tackling the problem. No announcement has been made about any alterations to the Asdic apparatus used to detect submarines, wartime models of which could only be operated at speeds of up to about 18 knots with any efficiency. The existence of Asdic was one of the Navy's best-kept secrets in the years between the wars, and any future developments are likely to be just as closely guarded. The absence of any news should not be taken to mean that nothing is being done. While it may be true to say that the answer to the 20-knot submarine has not yet been produced, the submarine itself is equally a thing of the future. On both sides, work is undoubtedly going ahead, and as islanders, dependent on shipping for the necessities of life, the British must hope that in the race between the two, the antisubmarine developments will establish a decisive lead.

The Netherlands East Indies

Digested by the MILITARY REVIEW from an article in the "Australian Army Journal" April-May 1949.

Geography

THE Netherlands East Indies (NEI) once referred to as Dutch "possessions" in the Malay Archipelago, comprise over 2,000 islands spreading from southeast Asia to northern Australia. The main groups are Sumatra, Java, Madoera, Celebes, Bangka and Billiton, the Riouw-Lingga Archipelago, the Mentawai Islands, the Lesser Sunda Islands, the Molucca Archipelago, and parts of Borneo and New Guinea.

From Batavia, the capital of Dutch administration, distances in sea-miles are approximately as follows: Darwin 1,700, Singapore 570, Manila 1,800, Hong Kong 1,900, Tokyo 2,600, Bombay 3,000.

Almost all of the large islands feature a central area of rugged mountains with numerous volcanoes, some active, in Sumatra and Java, descending to foothills, then to broad plains, and finally to large stretches of marshlands, with considerable tracts of virgin jungle.

As the major portion of this territory lies south of the equator in the equatorial zone, the climate of the main areas of population, excepting the regions over 2,000 feet, is one of monotonously high temperatures, humidity, and rainfall.

Successive migrations over centuries make it difficult to identify the original inhabitants, and none of the main modern groups is homogenous. The total population is over 75 million, with the largest concentration in Java, estimated at 50 million. The bulk of the inhabitants are adherents to the Mohammedan faith. The largest element of the foreign population is Chinese, numbering about 2 million.

Although the various elements retain their individual languages, amounting to over 200, fundamental unity of speech exists throughout the entire area based on the Indonesian form, but the official languages are Dutch and Malayan.

The NEI has about 50,000 miles of roads, about 50 percent being in Java and Madoera. In other islands such as Borneo and Sumatra, rivers are an important part of communications. Java and Madoera also have the bulk of the railways, totalling 3,362 miles, and Sumatra has 1,227 miles. Elsewhere, railways are negligible, and economic development is mainly based on coastal shipping.

Resources

Considerable strategic war resources lie within the area of the NEI. There is primarily, dispersed from Sumatra, Java, and Borneo to Dutch New Guinea, petroleum in large quantities which may well be vital to the democracies in the event of of another world war.

Present production of tin from Bangka and Billiton is greater than prewar. Output is more than 20 percent of total world production, while other valuable deposits in substantial quantities are bauxite, manganese, nickel ore, coal, and cement.

Rubber exports are again approaching prewar figures, and the teak forests of Java play an important part in local ship building.

A contribution to medical requirements is quinine bark in sufficient quantities to supply the world. Food production is approaching prewar levels, and the annual rice export surplus is estimated at 100,000 tons for the next 10 years.

The agricultural resources of the NEI are a most important source of wealth for a world in want. The importance of the spices of the picturesque early trading days has given way to foreign-credit-

earning production of copra, vegetable oils, and sugar, with increasing production of coffee, tea, tobacco, sisal, and salt.

History

The period from the second to the eighth centuries in the East Indies was one of assimilation of culture and influence of Indian immigration, but in the thirteenth century, Islam became established in Sumatra. It spread along the trade routes, fully taking root by the sixteenth century, when the Portuguese made strenuous efforts to establish their stations throughout the Indies. They were soon challenged by the Spaniards, although the power of both had waned considerably by the end of the century.

In 1602, the Dutch East India Company was chartered. After ejecting the Spanish and Portuguese, it found new rivals in the English and French, but emerged virtually unchallenged by the end of the century.

By the middle of the eighteenth century, the Dutch had established their control throughout Java and extended it over the rest of the East Indian Archipelago. The French revolutionary wars and their effect on European commerce led to the dissolution of the Dutch East India Company, already weakened by corruption, when its holdings were taken over by the Netherlands Government in 1798.

When Java was successfully invaded by the expedition led by Raffles of Singapore in 1811, Palembang, Makassar, and Timor became British territory, but Dutch rule was restored in 1816 through the Convention of London.

From about 1930 onwards, Japan began interfering with Dutch interests, but the Dutch continually resisted all attempts to secure concessions until 1941, which saw the invasion and occupation of the Netherlands East Indies by the Japanese.

In the period between the Japanese surrender and the entry of Allied troops, the Indonesian Republic, headed by Dr. Soekarno, and claiming jurisdiction over the entire Netherlands East Indies territories, was proclaimed.

In February 1946, Indonesian representatives agreed to negotiate on the basis of a proposal from the Dutch Government for a structure for the Dutch Kingdom and Indonesia based on a voluntary partnership. By the end of June, the Republicans issued counter proposals asking for the recognition of an Indonesian Free State to work in alliance with Holland and to embrace all communities in the Indies who wished to be associated with Java. During this time, the difficulties of reaching an agreement were aggravated by hostilities between Dutch and Republican troops. Nevertheless, a large area of Indonesia with a population of over 45 million had agreed to the Dutch plan for autonomy.

The first real milepost was the Linggadjati (Cheribon) agreement reached in March 1947. It recognized the Republic as exercising *de facto* authority over Java, Sumatra, and Madoera. It provided for the Dutch supporting areas of Indonesia to be incorporated gradually into a United States of Indonesia by 1949, and for this USI to become a unit in the Netherlands Union under the Dutch Crown. The agreement, like many others, was never put into force because neither side could agree upon its interpretation.

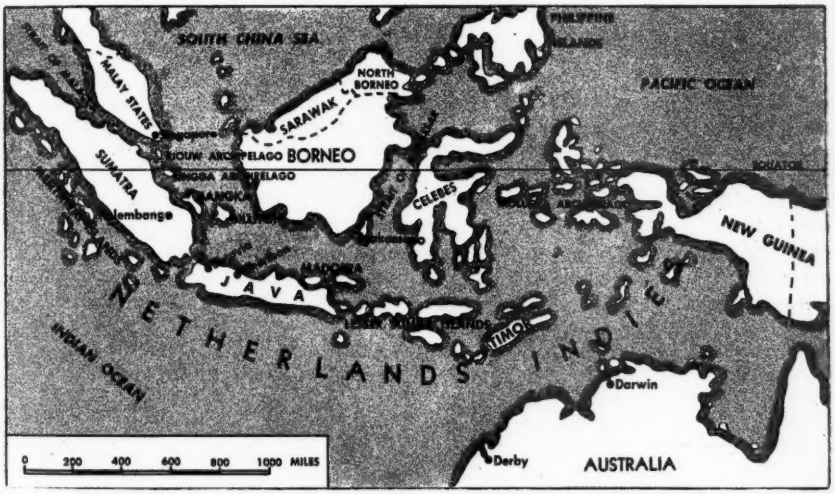
In July 1947, the Dutch began their first "police action," designed to subdue Republican areas which the Dutch claimed were controlled by extremists preventing settlement. On the initiative of Australia and India, the United Nations intervened. As a result, a truce was arranged and boundary lines established. Finally a new agreement was signed aboard the US transport *Renville* at Batavia in January 1948, whereby the Republicans agreed to recognize Netherlands sovereignty until the formation of the USI in January 1949.

The Dutch promised to hold a plebiscite to decide whether Indonesians wanted to join the Republic or remain under Dutch rule.

A *coup* by Russian-trained communists was staged in September 1948. An all-out Republican effort was made to oppose the insurgents, and the campaign ended in December when the Republicans captured Suripno and Sjarifoeddin, after having killed Moeso, the instigator.

However, the Dutch made no move to hold a plebiscite, and the Republican government disregarded Netherlands sovereignty by trying to obtain international recognition in roundabout ways. For instance, at the Economic Cooperation Authority for the Far East Conference at Lapstone last December, the Republic applied and was accepted as an associate member. The Dutch delegation walked out, and a fortnight later Dutch forces launched a new "police" offensive against the Republic. These operations ended in the occupation of the Republic.

In reply to a UN Security Council resolution, the Netherlands Government has stated that it is prepared to establish an interim government immediately, hold elections, and transfer full sovereignty by the middle of 1950.



Political Background

Indonesia has been politically part of the Kingdom of the Netherlands, ruled by a governor general in the name of the Queen.

Being the political and cultural center of Indonesian life, Java has always been the source of any national aspirations. Their formative inspiration seems to have been the Japanese defeat of the Russians in 1905. A few years after the founding of the first national movement in 1908, with its object only self-government, its three leaders were exiled.

In 1918, a representative body, the People's Council *(Volksraad)* was created. The following year, the Indonesian Communist Party (PKI) came into being, influenced by the Russian revolution. Several thousand alleged communists were exiled to New Guinea following an uprising in 1926, when the PKI was dissolved.

The Indonesian Nationalist Party (PNI) was formed by Soekarno in 1927. This was the first party to aim for com-

plete independence, but in 2 years the leaders were all exiled or in jail. A moderate group founded in 1937, the Indonesian People's Party, requested recognition of the term "Indonesians" instead of "natives," but was refused. When promulgated, the Atlantic Charter had a great reception in Indonesian political circles, but inquiry about its application to Indonesia by members of the *Volksraad* met with a non-committal reply from the Dutch government.

The Japanese dissolved all political parties, but after their surrender they recognized Indonesian claims for independence. The Dutch refused to negotiate with Soekarno, who was at the head of the promptly proclaimed Republic, and who had been decorated in Tokyo by the Emperor. But dealings with the more moderate Sjahrir failed to yield any satisfactory result.

The failure of the communist insurrection in September 1948 might well be due to the fact that communist objectives are at variance with the predominant faith of Islam. In addition, the Republicans, anxious as they were at the time to avoid a renewal of Dutch police action, were forced to take rapid steps to suppress the insurrection and so deny to the Dutch the opportunity to resume hostilities.

Strategic Significance

The barrier to British Empire communications which could be created by a hostile Indonesia can well be imagined, lying as it does across the Strait of Malacca, and controlling movement between the Indian Ocean and China Sea. If her numerous air bases were occupied by an enemy power, it could do much towards the isolation of British Malaya, British Borneo, Hong Kong, and Australia from contacts from the west.

Similarly, a considerable amount of shipping could be effectively dispersed among the island's numerous port facilities for use either by or against a communist-dominated Asia.

The NEI forms a natural line of advance from Asia to Australia's back door, and, with the development of air transport, brings a thousand million Asiatics only 24 hours away.

The resources of the NEI are of great strategic significance, and their availability to the Western Powers in a future conflict is of the utmost importance.

Ties With Other Nations

The indigenous peoples of Indonesia have very strong religious, cultural, and social ties with other nations. They are able to call on the passionate moral support, and where possible, the material support of most, if not all, the peoples of Asia. In addition, their cause for independence finds favor with many European countries. They are bound by blood to the Malays of British Malaya and the predominant faith of Islam allies them directly with Pakistan and the Arab states in the Middle East. Considerable Indian influence is prominent in their culture.

Politically, the rise of the new Asia spirit automatically provides the basis of wholehearted solidarity between Indonesia and the rest of Asia.

Definite Russian interest and support has been forthcoming and there is a belief that the Republican movement is being nurtured and nourished by the communists. In support of this is the Dutch claim of the capture of three Malayan-Chinese communist leaders in Sumatra, and the undoubted connection with Moscow of Republican leaders such as Moeso and Sjarifoeddin.

In their endeavors to gain their independence, the Indonesians have submitted their claims through the United Nations, but a member of that organization, Holland, has continually disregarded the

efforts of the UN to obtain a settlement. Thus, it is not beyond the realms of possibility that the Indonesians may seek the aid of the Soviet Union in their efforts to obtain their independence.

Australia is naturally very interested in the outcome of the struggle in the NEI, in view of the proximity of this area to her northern borders.

Influences Being Brought to Bear

Apart from non-official trades union channels, the Australian government has been prominent in directing UN attention to Indonesian affairs, by granting *de facto* recognition to the Republic, and spotlighting the Dutch "police action." As a result, the UN has set up an Indonesian Commission for investigation on the spot, and it also passed a resolution laying down a date for the granting of independence.

Asiatic countries are unanimous in their support under the leadership of India, which has allegedly offered both sanctuary and arms to the Republicans. The Asian conference in January 1949 drew up resolutions recommending the granting of Republican independence.

America has supported the Republic's claim to independence, even to considering the withdrawal of Marshall Aid to Holland.

Russia has made capital wherever possible out of condemning Dutch "colonial oppression." Without doubt, Russia is fostering contacts of communists in Indonesia with those in Russia, China, Malaya, and Australia.

War Production and Civilian Defense

Translated and digested by the MILITARY REVIEW from an article by Major Bo Wijkmark in "Ny Militar Tidskrift" (Sweden) No. 4, 1949.

A MILITARY organization is created to fight and to meet the requirements of war. Political considerations and the strategic situation in general are of fundamental importance in planning the military organization's employment in case of war. Plans developed in peacetime for the employment of the armed forces in war comprise, among other things, the assembly and grouping of combat forces, the maximum utilization of the country's transportation capacity for the concentration of troops, the establishment of supply organizations, and the organization of communications.

Since unusual situations develop during war, plans must be as flexible as possible. These plans are tested and modified in accordance with the experience gained in war games and field maneuvers. There is no reason for vacillation in preparing the directives for large-scale planning for the employment of Swedish defense forces in time of war.

The development of aviation led to the creation of an air-defense system and an evacuation organization which, during the last war, were combined into one organization called civilian defense. Civilian defense had to plan and execute the measures necessary for the protection of the civilian population and various installations against enemy action and against the activities of spies and saboteurs. Plans are made for the evacuation of cities and the removal of important materials, stores, and installations to places of safety.

The protection of civilians and their property is very important. However, when the nation's very existence as an independent country hangs in the balance, the primary mission of civilian defense is to provide moral and material support for the military defense. On this basis, it is

understandable why control over civilian defense is given to certain military chiefs in cases of emergency. Under certain circumstances, the military leaders must decide which civilian defense measures are best suited for serving the interests of the national defense in its entirety. Moreover, these military leaders must have the power to see that these measures are carried out. Military control will be exercised particularly in those areas where military operations are in progress or are imminent. A balance must be achieved between the effort to protect civilian population and property, and the necessity for maintaining the level of production required by the armed forces, civilian defense, and the national economy.

Production Planning

Planning national production in case of a blockade or war is the responsibility of the National Committee for Economic Defense. The National Committee is charged with leading, supervising, and coordinating the country's economic defense. The principal function of the National Committee is to satisfy defense needs in time of war.

Many questions must be answered by the Committee. To what extent should production be maintained in time of war, and what planning is necessary for carrying it out? All things considered, should limited production be maintained or should natural requirements be filled by utilizing supplies stored in peacetime? Should an effort be made to maintain the greatest possible production?

Obviously, a certain level of production ought to be maintained at all times, partly to maintain proper levels of supplies, and partly to furnish the national economy with those goods which cannot be stored for any great length of time. Furthermore, a war may have been preceded by a blockade or period of tension during which the country has been forced to make inroads on its reserve stores. It also would seem wise to depend on Swedish production to the greatest possible extent, as help from the outside is always uncertain and might come too late. From the psychological point of view, maintaining production would reduce the friction which occurs in social life immediately after the outbreak of a war. On the strength of these considerations, it is evident that if war breaks out, production ought to be maintained to the greatest possible extent. If it is understood that work is to be continued until further notice in case war breaks out, one cause for panic will have been eliminated. Also, the task of taking the necessary steps for the regulation of production will have been simplified.

Subject to instructions of the head of the government, it is incumbent on the National Committee to take measures for insuring production in time of war of those important products which cannot be stored in time of peace.

Planning for all the national production which should be maintained in time of war does not seem either fitting or possible because of the many unpredictable factors which enter the picture with the outbreak of war. Some other solution should be found. As regards production in time of war—the main responsibility of the National Committee—it would seem that its planning primarily should insure the production of the basic necessities for the armed forces, civilian defense, and a few other vital needs. Special planning will also be necessary for insuring the availability of certain vital materials for the population. Production facilities involved in this planning ought to be supplied with manpower, fuel, and raw materials. Such planning does not involve stopping production of other goods. On the contrary, to the extent that manpower, fuel, and raw materials permit, this

other production ought to be maintained to the greatest possible degree. The planning should be done with the interests of civilian defense in mind. The greatest possible protection for the population ought to be provided without, however, neglecting production.

Civilian Defense

After the main aspects of the principles of maintaining production in time of war have been established by the proper authorities, civilian defense will then have a definite foundation for planning evacuation and other related measures.

Under these conditions, it becomes immediately evident that the evacuation of cities where war industries are located should be carried out to the limited extent indicated by the need for maintaining production. Similar considerations should determine the evacuation of places where installations of special importance to the national economy, especially food producing agencies, are located. As regards evacuation of other installations or persons, this could be carried out without greatly diminishing the country's war potential. Evacuations in a time of crisis ought to be conducted gradually to avoid panic. First of all and under all circumstances, children, mothers, and the sick and aged ought to be evacuated from cities and towns.

The principles laid down here for the planning of production and evacuation would not likely be applicable in the case of the largest Swedish cities, Stockholm and Göteborg. Stockholm, the capital city, is the seat of the national administration and of practically all the central government offices. It possesses an important harbor. A large number of industrial organizations are located in this city and a large share of the country's population lives there or in the immediate vicinity. Göteborg, the country's second largest city, is also an important port city. Like Stockholm, it possesses several large industries and a large population. Both of these cities would, therefore, very likely be principal targets in any action against Sweden. An attacker with atomic bombs at his disposal would hesitate, perhaps, to use these costly weapons against smaller cities, but Stockholm, and even Göteborg, probably would be considered good targets for an atomic bomb attack. Because of the fact that these two cities contain a large proportion of Sweden's most important industrial installations and thus are very vulnerable, national production in time of war would be greatly limited. Raw materials for the industries and other important war requirements should be removed from these two cities to more protected places before the outbreak of a war. The evacuation plan relative to these two cities should provide for total evacuation as long as it is possible to carry on. Exceptions would be contingent on circumstances in outlying areas. Otherwise, only those inhabitants who were engaged in certain services, such as communications, police, and fire fighting, together with civilian defense personnel, would remain.

Inasmuch as Sweden's largest cities would be primary targets in a war, it is desirable from the standpoint of defense that additional industrial plants not be established in them. In fact, such establishments should be relocated in time of peace. Movement to the capital city should be limited by law.

Conclusions

The establishment of directives to govern the population's contribution in a total warfare will be as important as the establishment of principles for the activities of the armed forces. In addition to the material support which production provides, the population is also able to provide moral support for defense. Activity in the four spheres of defense,

civilian defense, war material, and moral support should be studied by all the authorities who most closely represent the respective spheres. The commander in chief is responsible for defense. The Civilian Defense Board is responsible for civilian defense. The National Committee for Economic Defense is responsible for material support. The fourth sphere, the moral or psychological, ought to be the responsibility of a combination of the three other authorities. Afterwards, on the recommendations of these authorities, final directives for the population's efforts in time of war should be established by the head of the state.

French Concepts of Defense

Translated and digested by the MILITARY REVIEW from an article by Lieutenant Colonel Le Gouvello in "Informations Militaires" (France) 10 February 1949.

IN 1939-1940, the French concept of defensive combat was that of the static front. Doctrine had changed very little since 1918, being influenced by the experience of trench warfare in World War I. Doctrine continued to be dominated by concern for the continuity of fronts and the phobia of open flanks. French military regulations, generally speaking, were defensive in nature. This was in marked contrast to concepts in 1914.

In nearly the same way as in 1870, this defensive spirit had resulted in a passive attitude that unduly emphasized the importance of position.

Again, as in 1870, the doctrine of fields of fire dominated military thinking. Fields of fire for flat-trajectory weapons were sought primarily.

The machine gun emerged from World War I as the most important weapon. After 20 years of exercises and maneuvers between the two world wars, in which artillery technique was often imperfect and even neglected in the smaller echelons, the machine gun became even more important.

Because of the small number of mortars in the French Army, this weapon made only a slight contribution to the fire plan and no one dreamed of the importance which would be attached to it later.

In short, the principal French effort was directed toward a search for fields of fire for the automatic weapons which were to stop the enemy while he was still at a distance.

Since it was considered that such fields of fire were most effective from sloping positions, crest positions with fire plans covering the areas at the foot of the slopes came into general use.

No thought was given to organizing counterslope positions during the numerous defensive exercises from 1918 to 1939. Although such positions were mentioned in French regulations, little was said about them.

The French regulations also spoke of counterattacks. They were mentioned in orders and defense plans, but generally the counterattacks in question were never, or almost never, completely carried out. As a rule, the maneuver came to an end before the counterattack phase was reached.

One of the most striking characteristics of French defensive methods was the absence of mobility and the absence of mobile reserves.

Once the forces had been placed in position, about all that remained to be done was to wait and to contain the attack of the enemy. The latter retained operational initiative at all times.

It was not until 1940-1941 that the ratio

The static front, represented by such works as the Maginot Line, was one of the main concepts of French defense when World War II opened. Above, a Maginot Line casemate in December 1944 was being used only temporarily for shelter by a unit of the US 12th Armored Division. Below, armor was the German answer to the French concepts of defense in 1940; a German armored column at St. Hilaire, France, 12 June 1940. Right, trench warfare, so important in World War I, was a negligible factor in World War II; however, Seventh Army troops found many trenches such as these near Saarbrucken early in 1945.—US Army photos.

established by the Germans between the fixed and mobile elements of their defenses was determined. Ordinarily, they relied on a one to three ratio for defending lines and a two to three ratio for counterattacks. This seemed almost unbelievable to the French.

With certain points intentionally exaggerated for emphasis, the French concept of defense during the post World War I period followed the outline above.

Developing New Doctrines

A few new concepts had been introduced during the years immediately preceding World War II. The two principal features were the development of antitank obstacles and the preparation of strong points with an all-round defense.

The development of armor led to the search for antitank obstacles. Woods and inhabited places were regarded as such.

Here again, education and training weakened the new concepts, and little was said regarding them.

The French had believed for 15 years that an attack could be stopped only by the fire of flat-trajectory weapons with broad fields of fire. They objected to assuming a position inside a woods or village when, as everyone knows, the good fields of fire are on the edges of these positions. Previous experience also had caused the French to distrust inhabited places. The war of movement proved the protective value of villages against artillery fire.

How could a satisfactory fire plan be worked out in the midst of the woods which border nearly every stream, especially when only a small quantity of curved-trajectory weapons were available?

As a matter of fact, close combat and counterattacks characterize fighting in woods. This was precisely the type of defensive action that the French were neither accustomed to nor prepared for.

Likewise, the idea of strong points with an all-round defense had been advanced before World War II, but it was particularly developed during the winter of 1939-1940. It resulted in increased concern for the protection of flanks and rear areas.

Here again, unfortunately, the concept was too static. It was not realized that to be efficient this all-round defense disposition had to be supplemented by mobile reserves and combined with a systematic employment of counterattacks.

The French state of mind was, all things considered, extremely passive on the eve of the German drive of 11 May 1940.

Progress has been made in recent years in developing more logical tactical ideas. In addition to developments in armor and aviation, improvements in light curved-trajectory weapons and radio have particularly favored a war of movement.

This transition to a war of movement was foreseen by some, but it took the bitter experience of 1940 and the study of the years immediately following to establish the importance of such tactics.

Little by little, the French defensive concept changed to one of action and force until it became the present concept of "offensive defense."

This evolution resulted from the realization that the clash of one man with another was less to be feared, all things considered, than a clash with tanks, and it was less deadly than the effects of certain present-day types of fire.

Previous reluctance in taking up positions in the interior of woods and inhabited places for the purpose of separating tanks from their accompanying infantry disappeared. Slope positions, with their broad and clear fields of fire, were abandoned, and positions were taken up back of a counterslope or some other protective shield in order to escape the effects of direct fire. The high rate of fire of the automatic weapons now employed made it possible to halt an assailant by laying down a dense barrage spread over a slight depth. It was realized that the large

number of curved-trajectory weapons now employed compensated for imperfections in fields of fire by effectively covering dead spaces and covered areas. These weapons could be employed for most of the medium and long-range missions formerly handled by machine guns.

Defensive Concept in 1945

French operations in 1943, 1944, and 1945 in Italy, France, and Central Europe were generally offensive in character. However, the short periods of stabilization which interrupted the operations allowed time to examine German positions which had been seized. Certain basic principles followed by the Germans in defensive combat were revealed.

Even when their forces were weak, the Germans held to the classical doctrine of continuity of fields of fire. They were almost systematic in their utilization of the counterslope. The French adopted the same method quite rapidly.

Experience had shown that it was difficult to "live" very long under the conditions of modern combat on a slope position in direct view of the enemy. In addition to the difficulties of liaison, supply, and evacuation, unendurably heavy daily losses will be sustained in such a position.

Still more serious is the fact that, when an attack in force is launched by the enemy, the principal elements of the defense will have been previously located in spite of all efforts at camouflage, and they will be systematically attacked by artillery and mortars.

These considerations alone justify the employment of counterslope positions or, lacking these, the use of cover which will offer the same advantages.

Certain limitations result from the employment of counterslope positions. An important one is that fire must be opened at close range. The Germans did not regard this as a disadvantage. As a rule, they did not open fire with their flat-trajectory weapons until the last moment, usually during the last 100 yards.

The results of this method were to pin the enemy down in a place where he was unable to call on his artillery or even his mortars, due to the lack of a necessary margin of safety.

The number of automatic weapons employed at the present time and their high rate of fire make it possible to lay down a sufficiently dense barrage, even over a very slight depth, to stop the impetus of an enemy attack.

Distant objectives which are revealed either during a period of stabilization or at the beginning of an attack are most frequently attacked by curved-trajectory weapons, artillery, or mortars. Certain flat-trajectory weapons, such as heavy machine guns or expert marksmen firing semi-automatic rifles equipped with telescope sights, participate in this long-range fire, using alternate positions located in the interior of the main defensive position. These latter weapons may even be in advance of the main position or on its flanks, taking care to avoid revealing the real organization of the fire plan.

In such a defensive disposition, observation must be carefully planned and organized in advance. In order that a counterslope position shall not be "blind," it is necessary to find dominating heights in the interior of the position or in its rear areas which afford an extended view beyond the crest. The ideal solution is another crest which is higher than the first. When such a crest is lacking, lateral observation posts, even in the areas occupied by other units, should be found. In certain cases, observers may have to be placed on the crest itself or ahead of it.

This method of observation will require well-organized, advanced strong points. These strong points will have an important part to play in establishing and maintaining an interdiction zone in advance of the main position.

The enemy must not be left free to advance to the crest and observe the defensive positions. For this reason, an interdiction zone is carefully maintained in advance of the position. This corresponds closely to the classical "advanced-post position." A few well chosen strong points in this zone will be occupied and held firmly. Others will be simple lookout emplacements, either permanent or temporary.

The remainder of the terrain will be barred by mine fields, which must be covered by artillery and mortars or heavy machine guns and kept under surveillance by patrols.

This interdiction zone must be sufficiently covered by fire and protected to make it impossible for enemy reconnaissance patrols to approach the counterslope position.

The best way to block enemy efforts of this kind is to display an aggressive attitude, constantly threatening the enemy's own advanced positions.

If one of the strong points organized for all-round defense is penetrated by the enemy, it must immediately be retaken by a counterattack.

The counterattack is one of the principal methods employed in defense. The Germans made systematic use of it. Allied units which reached their objectives were almost without exception subjected to a counterattack.

In case of penetration into a position, counterattacks of all types must be brought into play. They might be the small, immediate counterattack by a squad or platoon, or the carefully prepared and elaborately supported counterattack launched by large units.

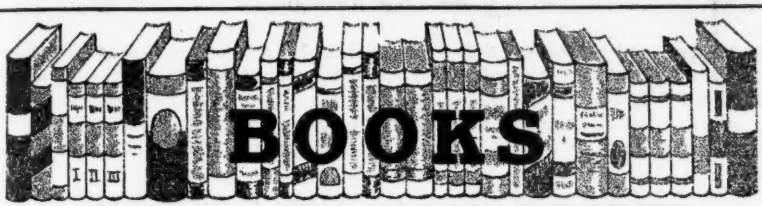
The advantages of the counterattack are undeniable, since it catches the already exhausted enemy before he has had time to reorganize.

The best counterattack is that which is launched against the enemy's flank, thus threatening the adversary's command organizations and liaison.

The systematic use of the counterattack, combined with aggressiveness, constitutes the fundamental element of what has been labeled "offensive defense."

No nation should ever permit itself to be frozen to any static concept—whether that concept is the crossbow, or gunpowder, or the Maginot Line, sea power or air power, or the atomic bomb.

Former Secretary of Defense James V. Forrestal



FOR THE MILITARY READER

THE UNITED STATES IN WORLD AFFAIRS, 1947-1948. By John C. Campbell. 510 Pages. Harper & Brothers, New York. $5.00.

Recent world events as they have affected the United States form the substance of this volume. The second of two volumes prepared by the Council on Foreign Relations since the end of World War II, the present book covers the period from the spring of 1947 to the spring of 1948. Here the reader will find much on the widening breach with Russia and the crisis that has developed in the United Nations. Among other subjects, the author covers the Truman Doctrine and the Marshall Plan, Germany, Japan and Korea, and Asia. One chapter deals with inter-American affairs.

WESTERN UNION. A Study of the Trend Toward European Unity. By Andrew and Frances Boyd. 174 Pages. Public Affairs Press, Washington, D.C. $3.00.

In view of the many recent steps that have tended to draw the nations of Western Europe closer together, this book is quite timely. The two British authors give a survey of the condition in which Europe finds itself after World War II, and they sketch the various early attempts to unify Europe. One chapter deals with recent developments such as the Marshall Plan, economic union, defense measures, and the various influences of the United Nations on Europe. The book covers events into 1948, and it thus stops short of the creation of the Council of Europe on 28 January 1949.

UNITED STATES ARMY IN THE WORLD WAR, 1917-1919. Vol. III, Training and Use of American Units With British and French. By the Historical Division, Department of the Army. US Government Printing Office, Washington. $3.75.

The Historical Division of the Army continues its publication of World War I documents with a volume devoted entirely to one of the biggest problems of that war—training. Without a single trained division at the outbreak of war, the Army nevertheless immediately launched a program to send men and equipment to Europe to bolster the depleted ranks of the Allies. These first Americans in Europe were trained with the British and French, and there was great pressure on the American military leaders to have them used exclusively to fill out British and French units. Training was primarily in trench warfare, not the "open country" operations with which American troops have been historically associated. Much of the book documents General Pershing's fight for establishment of an independent American Army. The next book in this 17-volume series will be the first dealing with combat.

THE STRUGGLE FOR DEMOCRACY IN GERMANY. Edited by Gabriel A. Almond. 345 Pages. University of North Carolina Press, Chapel Hill. $4.00.

THE STORY OF MAPS. By Lloyd A. Brown. 397 Pages. Little, Brown & Co., Boston. $7.50.

THE ARMY LIBRARY

CIVIL-MILITARY RELATIONSHIPS IN AMERICAN LIFE. Edited by Jerome G. Kerwin. 172 Pages. The University of Chicago Press, Chicago. $2.75.

In eight essays by prominent educators, journalists, and public officials, this volume seeks (1) to identify the changes in conditions which have caused a greater influence of the military profession on American life, and (2) to examine how American freedoms can be preserved by safeguarding the predominance of civilian power. The book notes the historical American tradition of civilian control of the government in war as well as peace and the lack of military consciousness in America in peacetime. The various authors examine America's civil-military relationships in the light of our postwar policy of maintaining large-scale military forces until international organizations become strong enough to replace national force. The essays cover the following subjects: "Science, Technology, and War," "From Soldier to Citizen," "The Recruitment and Training of the New Armed Forces," "Civilian Control of a Department of National Defense," "Government of Conquered and Dependent Areas," "The Military and Foreign Policy," "Civil-Military Relations in the United Nations," and "Security Without Militarism: Preserving Civilian Control in American Political Institutions."

COMMUNISM. Its Plans and Tactics. By Frances P. Bolton and others. 98 Pages. Infantry Journal Press, Washington, D. C. $2.00.

This book is a study made by a subcommittee of the Committee on Foreign Affairs of the U.S. House of Representatives. It takes up the influence of communism in Europe, discusses the theory and practice of communism, describes the tactics of world communism, and outlines an "approach to counteraction."

STALIN: A POLITICAL BIOGRAPHY. By Issac Deutscher. 600 Pages. Oxford University Press, New York. $5.00.

A GRAMMAR OF AMERICAN POLITICS. By Wilfred E. Binkley and Malcolm C. Moos. 760 Pages. Alfred A. Knoff, New York. $6.00.

THE ATLANTIC PACT. By Halford L. Hoskins. 104 Pages. Public Affairs Press, Washington, D. C. $2.50.

CORAL SEA, MIDWAY AND SUBMARINE ACTIONS (May 1942-August 1942): Vol. IV, History of United States Naval Operations in World War II. By Samuel Eliot Morison. 296 Pages. Little, Brown & Co., Boston. $6.00.

BEHIND THE CURTAIN. By John Gunther. 363 Pages. Harper & Brothers, New York. $3.00.

ECONOMIC PLANNING: The Plans of Fourteen Countries With Analyses of the Plans. By Seymour E. Harris. 577 Pages. Alfred A. Knoff, New York. $6.00.

SCIENTISTS IN UNIFORM: World War II. A Report to the Deputy Director for Research and Development, Logistics Division, General Staff, U.S. Army. 98 Pages. US Government Printing Office.

PROWLING RUSSIA'S FORBIDDEN ZONE. By Werner Knop. 204 Pages. Alfred A. Knoff, New York. $2.75.

AN ARMY IN EXILE: The Story of the Second Polish Corps. By Lieut. Gen. W. Anders. 319 Pages. The Macmillan Company, New York. $5.00.

THE EAGLE IN THE EGG. (A history of the Air Transport Command.) By Oliver La Forge. 320 Pages. Houghton Mifflin Company, Boston. $3.50.